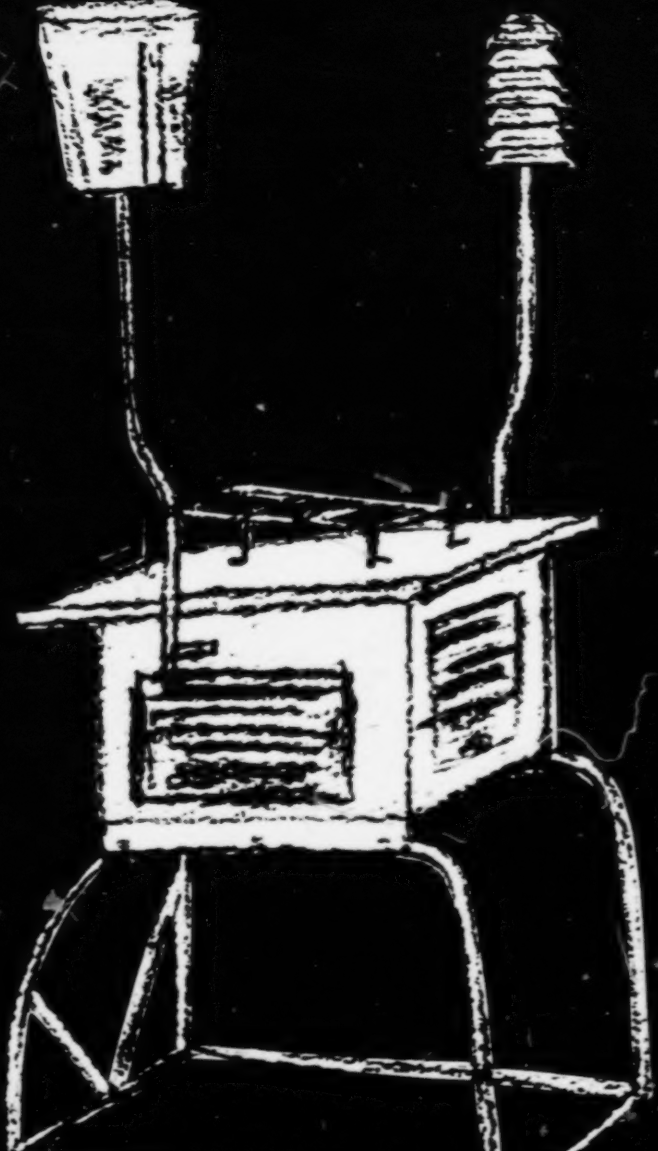
PB 200 519

INTERSTATE SURVEILLANCE PROJECT: MEASUREMENT OF AIR POLLUTION USING STATIC MONITORS



Reproduced by
NATIONAL TECHNICAL INFORMATION SERVICE
Springfield, Va. 22151

U. S. ENVIRONMENTAL PROTECTION AGENCY

PB 200 519

BIBLIOGRAPHIC DATA SHEET

1. Report No. APTD-0666

2.

3. Recipient's Accession No.

4. Title and Subtitle Interstate Surveillance Project: Measurement of Air Pollution Using Static Monitors

5. Report Date May 1971

6.

7. Author(s) James H. Cavender, William M. Cox, Maurice Georgevich, Norman A. Huey, George, A. Jutze, Charles E. Zimmer

8. Performing Organization Rept. No.

9. Performing Organization Name and Address
U. S. Environmental Protection Agency
Air Pollution Control Office
Research Triangle Park, N. C. 27709

10. Project/Task/Work Unit No.

11. Contract/Grant No.

12. Sponsoring Organization Name and Address
Same as above

13. Type of Report & Period Covered

14.

15. Supplementary Notes

16. Abstracts

The Interstate Surveillance Project was initiated with the following objectives: to obtain interstate, intrastate and international information on the types and degrees of air pollution in these areas and to provide information for later in-depth studies; to demonstrate the validity of the static monitor as a tool for measuring the effects of pollutants on materials; to provide continuing surveillance to determine air pollution trends in these areas. The basic structure, monitor components, and measuring capabilities of the monitoring unit are described. An informative discussion is given of the data tabulation of sampling results for all components of all stations. Evaluation of areas (which includes overall impact of pollution as well as the major pollution problems in the area) are presented. Project data evaluation is also given. (APCO abstract)

17. Key Words and Document Analysis. 17a. Descriptors
Monitors
Surveillance
Field data
Atmospheric corrosion
Fading
Discoloration
Sulfation
Airborne wastes

17b. Identifiers/Open-Ended Terms
Interstate Surveillance Project
Air pollution detection
Air pollution effects (materials)
Monitoring Network
Soiling index

17c. COSATI Field/Group 13/B

18. Availability Statement EP 4.9/2:0666
Available from Superintendent of documents, Washington, D. C. 20402

19. Security Class (This Report) UNCLASSIFIED

20. Security Class (This Page) UNCLASSIFIED

21. No. of Pages 164

22. Price 1.25

FORM NTIS-35 (10-70)

USCOMM-DC 40329-P71

INTERSTATE SURVEILLANCE PROJECT: MEASUREMENT OF AIR POLLUTION USING STATIC MONITORS

James H. Cavender
William M. Cox
Maurice Georgevich
Norman A. Huey
George A. Jutze
Charles E. Zimmer

U.S. ENVIRONMENTAL PROTECTION AGENCY
Air Pollution Control Office
Research Triangle Park, North Carolina
May 1971

For sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402 - Price $1.25
Stock Number 5503-0006

ACKNOWLEDGMENTS

The monitoring network for the Interstate Surveillance Project could not have been established and operated without the support of the many individuals in the local and state agencies who provided much of the on-site servicing and day-to-day operation. The Air Pollution Control Office of the Environmental Protection Agency offers its sincere thanks to those organizations and to their employees.

Contributors George Jutze and Charles Zimmer of Resources Research, Inc., performed their portion of this project under contract with Research Triangle Institute.

The APTD (Air Pollution Technical Data) series of reports is issued by the Air Pollution Control Office to report technical data of interest to a limited readership. Copies of APTD reports are available free of charge to APCO staff members, current contractors and grantees, and nonprofit organizations - as supplies permit - from the Office of Technical Information and Publications, Air Pollution Control Office, U.S. Environmental Protection Agency, P.O. Box 12055, Research Triangle Park, North Carolina 27709.

Air Pollution Control Office Publication No. APTD -0666

CONTENTS

Section *Page*

LIST OF FIGURES vii

LIST OF TABLES viii

1. INTRODUCTION
Maurice Georgevich and George Jutze 1

1.1 Objectives 1
1.2 Data Limitations 1
1.3 Surveillance Network 2
1.3.1 Station Classification 2
1.3.2 Station Types 2
1.3.3 Station Operation 2

2. DESCRIPTION OF MONITORING UNIT
Norman Huey and Maurice Georgevich 9

2.1 Basic Structure 9
2.2 Monitor Components 10
2.3 Measuring Metal Corrosion 11
2.3.1 Zinc Panel 11
2.3.2 Steel Panel 11
2.4 Evaluating Color Fading 11
2.4.1 Causes 12
2.4.2 Dyed-Fabric Panels 12
2.5 Measuring Material Deterioration 12
2.5.1 Nylon Panel 13
2.5.2 Silver Plate 13
2.5.3 Rubber Panel 13
2.6 Measuring Sulfation 14
2.6.1 Sulfation Candle 14
2.6.2 Sulfation Plate 14
2.7 Evaluating Soiling 14
2.7.1 Dustfall Bucket 14
2.7.2 Sticky Paper 15

3. DISCUSSION OF PROJECT DATA
James Cavender 17

3.1 Frequency Distributions for all Components 17
3.1.1 Background Stations 17
3.1.2 Stations by Classification 17
3.2 Seasonal Effects on Components 25
3.3 Annual Averages for all Components 25
3.4 Summary 31

4. AREA EVALUATION
Norman Huey and George Jutze 33

4.1 Frequency Distribution of Areas 33
4.1.1 Assigning Pollutant Code Numbers (PCN's) 33
4.1.2 Defining Pollutant Problems 36
4.2 Evaluation of Particulate Problems 38
4.3 Evaluation of Sulfur Oxide Problems 39
4.4 Evaluation of Hydrogen Sulfide Problems 39
4.5 Evaluation of Acid Aerosol Problems 41

Section *Page*

4.6 Evaluation of Nitrogen Oxide Problems 43
4.7 Evaluation of Oxidant Potential Problems 43
4.8 Summary 45

5. STATISTICAL EVALUATION OF DATA 47
William Cox and Charles Zimmer

5.1 Correlations between Components 47
5.2 Correlations of Components and Meteorological Parameters 47
5.2.1 Relative Humidity 47
5.2.2 Moisture and Temperature 50
5.3 Correlations Between Components and Air Quality Data 51
5.4 Factor Analysis 52
5.4.1 Factor Analysis Technique 52
5.4.2 Results 53
5.4.3 Factor-Score Matrix 54
5.5 Discussion of Analyses 54
5.6 Discussion of Components 56
5.6.1 Zinc Panels 56
5.6.2 Steel Panels 57
5.6.3 Sulfation Candles and Plates 57
5.6.4 Rubber Panels 57
5.6.5 Dustfall Buckets 57
5.6.6 Sticky Paper 57
5.6.7 Nylon Panels 57
5.6.8 Dye-Fabric Combinations 57
5.6.9 Silver Plates 58

6. CONCLUSIONS 59
James Cavender and Norman Huey

7. REFERENCES 61

Appendix A
List of Interstate Surveillance Project Stations by State 63

Appendix B
Data Summary 73

Appendix C
1968 Quartile Rankings of Components by Area and Station 147

LIST OF FIGURES

Figure *Page*

2–1 "Effects Network" Sampler 9

3–1 Distribution of Rubber Deterioration Results by Month, 1968 25

3–2 Distribution of Sulfation Results by Month, 1968 26

3–3 Distribution of Dustfall Results by Month, 1968 26

3–4 Distribution of Fabric No. 8 Results by Quarter, 1968 27

3–5 Distribution of Fabric No. 9 Results by Quarter, 1968 27

3–6 Geographic Distribution of Lead Candle Sulfation Measurements, 1968 30

LIST OF TABLES

Table		Page
1–1	Interstate Surveillance Project Network Areas	3
2–1	Effects of Pollutants on Monitor Components	10
2–2	Dye-Fabric Combinations for Nine Components	12
3–1	Frequency Distribution of Measurements, 1967–1968	18
3–2	Frequency Distribution of Background Stations, 1968	20
3–3	Frequency Distribution of Industrial Stations, 1968	21
3–4	Frequency Distribution of Commercial Stations, 1968	22
3–5	Frequency Distribution of Residential Stations, 1968	23
3–6	Frequency Distribution of Rural Stations, 1968	24
3–7	Effects Network Annual Averages Cumulative Frequency Distribution, 1967–1968	28
4–1	Component-Pollutant Relationship Shown by Pollutant Code Number	33
4–2	Maximum Pollutant Code Number Tabulation, By Area	34
4–3	Number and Relative Severity of Air Pollution Problems in ISP Areas	37
4–4	Relationship of Particulate Emission Density to ISP Particulate Problem Severity Index, 1968	39
4–5	Other ISP Areas for Which Particulate Emission Density Estimates Are Available	40
4–6	Relationship of Sulfur Oxides Emission Density to ISP Sulfur Oxides Problem Severity Index	40
4–7	Other ISP Areas for Which Sulfur Oxides Emission Density Estimates Are Available	41
4–8	Relationship of Sources to ISP Hydrogen Sulfide Problem Severity Index	42
4–9	Relationship of Sources to ISP Acid Aerosol Problem Severity Index	42
4–10	Nylon Deterioration in Volunteer Arsenal Area	43
4–11	Relationship of Sources to ISP Nitrogen Oxides Problem Severity Index	44
4–12	Oxidant-Potential Areas	44
5–1	Effects Correlation Matrix, 1967	48
5–2	Effects Correlation Matrix, 1968	49
5–3	Correlations Among Monthly CAMP and Effects Components	51
5–4	Factor Loadings for 1967 and 1968	53
5–5	Comparison of "Dirtiness" Factor Severity Index and Particulate Severity Index	55
5–6	Comparison of "Corrosive" Factor Severity Index and Sulfur Oxides Severity Index	56
6–1	Components Used in Effects Sampling	59
A–1	Interstate Surveillance Project Stations	64
B–1	Data Summary	74
C–1	Component Ranks, 1968	148

INTERSTATE SURVEILLANCE PROJECT: MEASUREMENT OF AIR POLLUTION USING STATIC MONITORS

1. INTRODUCTION

Maurice Georgevich and George Jutze

The Interstate Surveillance Project (ISP), originally called the Effects Network, was initiated in 1965 to meet a responsibility for collecting data and evaluating interstate air pollution. This responsibility, outlined in Section 105 (c) of the Clean Air Act of 1963 and reinforced by the Air Quality Act of 1967, was assigned to the Division of Abatement* of the Air Pollution Control Office (APCO) of the Environmental Protection Agency. If traditional methods of data gathering had been used, it would not have been possible to gather detailed air quality data on the type and severity of emissions for all areas within the constraints of the projected time-frame and resources. For this reason the Branch decided to use relatively unsophisticated measurement techniques based on the use of static pollutant indicators. The indicator or field measurement device was to be the so-called "effects package," a static monitoring unit used for measuring pollutant levels and for identifying effects.

1.1 OBJECTIVES

To partially fulfill its responsibility, the Abatement Branch formulated the following ISP objectives:

To obtain interstate, intrastate, and international information on the types and degrees of air pollution in these areas, and to provide information for later in-depth studies.

To demonstrate the validity of the static monitor as a tool for measuring the effects of air pollutants on materials.

To provide continuing surveillance to determine air pollution trends in these areas.

In the early phases of the project, primary emphasis was directed to interstate areas, although some stations, located in intrastate areas, were usually operated in conjunction with state or university programs. As the regional aspects of air pollution control were expanded, the project increased its nationwide coverage by adding a number of intrastate and international areas.

1.2 DATA LIMITATIONS

A detailed evaluation of climatological effects on the ISP components was found to be not feasible for this project. A number of meteorological parameters, however, were identified, evaluated, and later compared with data from the surveillance network to identify significant cause-effect relationships. The comparison was limited by several constraints:

1. Requisite control chamber studies had not been undertaken to establish a scientific data base from which the meteorological sensitivity of the components could be determined.
2. Changes in site location between time of meteorological measurements and time of effects measurements together with changes in sampling times made statistical or mathematical analysis very difficult.
3. A network of field stations for climatological measurement had not been specifically included in the design of the ISP network.
4. Component measurements are the result of the complex interrelationships of climatological and demographic effects, which are extremely difficult to separate.

To the extent that a limited comparative analysis was performed, a number of cause-effect relationships will be discussed in the statistical evaluation section of this report.

---

*Then called the Abatement Branch of the Division of Air Pollution.

1.3 SURVEILLANCE NETWORK

The first stations of the surveillance network were placed on-line in January 1966; 106 stations were operating by the end of the year. By December 1967, the network had increased to 224 stations, and by December 31, 1968, to 269. About 20 percent of the 269 are in intrastate areas, and 80 percent are near state boundaries. A complete listing by state, Table A-1 of Appendix A, provides station numbers, names, and addresses.

The 269 surveillance network stations are grouped into 144 areas, some areas with as many as ten stations, others with one. Generally, the number of stations will vary according to the size and complexity of the area. In Table 1–1 is an alphabetical listing of the 144 areas with station numbers, locations, types, and classifications for each area.

Data from the ISP network, used in abatement activities by the Division of Abatement, form part of the data base from which specific conclusions and recommendations were drawn. Moreover, the Office of Regional Activities, APCO, has used ISP network data and other data to define the Air Quality Control Regions.

1.3.1 Station Classification

The varied objectives of the ISP make it mandatory that the individual stations be located in highly polluted areas as well as in more remote, less polluted areas. The population and the complexity of the area emissions determine the number and location of the stations.

To aid in data interpretation, sampling site locations were classified by general location into four groups:* residential, commercial, industrial, and rural. Residential areas, as the name implies, are comprised almost entirely of residential dwellings, with few or no commercial enterprises. Commercial areas, used primarily for business purposes, are usually downtown urban areas. Industrial areas are those used primarily for manufacturing or production. Rural areas, those away from the city or town, have few residential dwellings; they are not necessarily considered as unpolluted areas since they may be near to or influenced by point emission sources; they are not the same as background stations, discussed below under "Station Types."

Of the 269 stations on-line through 1968, 130 were located in residential, 73 in commercial, 43 in industrial, and 23 in rural areas.

1.3.2 Station Types

Although ISP stations are categorized as one of four types depending upon area location, pollution components for all types of stations remain the same.

Type 1 stations, referred to as regular monitoring stations, are located in interstate areas.

Type 2 stations, referred to as CAMP stations, are located close to Public Health Service Continuous Air Monitoring Program (CAMP) stations. CAMP stations at six locations, Washington, Cincinnati, Chicago, St. Louis, Philadelphia, and Denver, monitor sulfur dioxide, nitrogen dioxide, nitrogen oxide, carbon monoxide, methane, and hydrocarbons. ISP stations were located in these areas so that data on gas pollutants from the continuously monitored CAMP sites could be correlated with data accumulated by the static devices of the "effects package."

Type 3 stations, referred to as experimental stations, are usually set up in intrastate areas in conjunction with state and/or university air pollution programs.

Type 4 stations, referred to as background stations, are located in areas with no significant air pollution sources; they were selected to provide normative background data.

1.3.3 Station Operation

Operation of a network of this magnitude, with the limited manpower available, made it necessary to obtain the assistance of local volunteers for on-site servicing and day-to-day site operation. In most cases this assistance was provided by local health departments or air pollution agencies through arrangements made by regional directors of Public Health Service air pollution control programs and by heads of the appropriate state agencies for air pollution control.

Supplies and analytical or statistical services provided by APCO to local agencies included complete instructions, shipping containers, and other equipment. On-site visits were made by APCO personnel to resolve problems and to insure rapport with the servicing agencies.

---

*The classifications do not necessarily correspond to existing municipality zoning categories.

Table 1–1. ISP NETWORK AREAS

Area name	Station number	Station location	Station classification[a]	Station type
Albany	22	Albany, New York	R	1
	30	Albany, New York	C	1
Anchorage	246	Anchorage, Alaska	R	3
Ann Arbor	224	Ann Arbor, Michigan	R	3
Augusta	131	Augusta, Georgia	C	1
	133	North Augusta, South Carolina	R	1
Austin	120	Austin, Texas	R	3
Bastrop	216	Bastrop, Louisiana	I	1
	208	Crossett, Arkansas	R	1
Beaumont	121	Beaumont, Texas	R	1
	122	Port Arthur, Texas	R	1
	123	Orange, Texas	R	1
	124	Sulfur, Louisiana	R	1
Bellingham	77	Bellingham, Washington	I	1
Binghamtom	25	Binghamton, New York	I	1
Blacksburg	195	Blacksburg, Virginia	R	4
Block Island	189	Block Island, Rhode Island	Rural	4
Bluefield	159	Bluefield, West Virginia	C	1
	160	Bluefield, Virginia	C	1
Bogalusa	214	Bogalusa, Louisiana	C	1
Boston	192	Boston, Massachusetts	C	3
Boulder City	89	Boulder City, Nevada	R	1
Bridgeport	243	Bridgeport, Connecticut	I	1
Bristol	148	Bristol, Tennessee	C	1
	158	Bristol, Virginia	C	1
Broward County	135	Broward County, Florida	R	3
Brownsville	119	Brownsville, Texas	C	1
Brownwood	125	Brownwood, Texas	R	4
Buffalo	23	Niagara Falls, New York	I	1
	24	Buffalo, New York	I	1
	264	Cheektowaga, New York	I	1
	265	Buffalo, New York	R	1
	266	Niagara Falls, New York	I	1
	267	Niagara Falls, New York	I	1
Bullfrog	262	Bullfrog, Utah	R	4
Burlington	181	Burlington, Vermont	R	1
Cairo	258	Cairo, Illinois	C	1
Calexico	93	Calexico, California	R	1
Cannon Mountain	175	Cannon Mountain, New Hampshire	Rural	4
Carville	219	Carville, Louisiana	R	3
Chapel Hill	237	Chapel Hill, North Carolina	Rural	4
	238	Chapel Hill, North Carolina	R	3
Charleston	263	Charleston, Indiana	R	3
Charlotte	31	Charlotte, North Carolina	R	1
	32	Charlotte, North Carolina	R	1
	33	Rock Hill, South Carolina	R	1
Chattanooga	140	Chattanooga, Tennessee	C	1
	141	Chattanooga, Tennessee	R	1
Cheyenne	252	Cheyenne, Wyoming	R	1
Chicago	26	Chicago, Illinois	C	2
	52	East Chicago, Illinois	I	1
	53	Hammond, Indiana	R	1
	54	Chicago, Illinois	R	1

Table 1–1 (continued). ISP NETWORK AREAS

Area name	Station number	Station location	Station classification[a]	Station type
Chicago (continued)	55	Calumet City, Illinois	R	1
	136	Cicero, Illinois	R	1
	137	Bedford Park, Illinois	I	1
	138	Chicago Heights, Illinois	I	1
	139	Palatine, Illinois	R	1
	149	Gary, Indiana	R	1
Cincinnati	6	Cincinnati, Ohio	R	2
	70	Cincinnati, Ohio	R	1
	154	Covington, Kentucky	R	1
	155	Cincinnati, Ohio	C	1
Clarkston	74	Lewiston, Idaho	I	1
	75	Lewiston, Idaho	C	1
	76	Clarkston, Washington	C	1
Clifton	261	Clifton, Arizona	R	1
Columbus	142	Columbus, Georgia	R	1
	143	Phenix City, Alabama	R	1
Columbus	37	Columbus, Ohio	R	3
Corvallis	69	Corvallis, Oregon	R	4
Custer	244	Custer, South Dakota	Rural	4
Davenport	57	Rock Island, Illinois	C	1
	58	Moline, Illinois	C	1
	59	Davenport, Iowa	C	1
Del Rio	115	Del Rio, Texas	R	1
Denver	27	Denver, Colorado	C	2
Detroit	34	Detroit, Michigan	R	1
	35	River Rouge, Michigan	I	1
	162	Grosse Ile, Michigan	I	1
	163	Livonia, Michigan	R	1
	165	Ojibway, Ontario, Canada	C	1
	170	Windsor, Ontario, Canada	Rural	1
	196	Dearborn, Michigan	I	1
Douglas	102	Douglas, Arizona	R	1
Dubuque	227	Dubuque, Iowa	I	1
	228	East Dubuque, Iowa	C	1
Dulce	100	Dulce, New Mexico	R	4
Duluth	49	Duluth, Minnesota	R	1
	50	Superior, Wisconsin	R	1
Eagle Pass	116	Eagle Pass, Texas	C	1
East Helena	254	East Helena, Montana	I	3
Easton	14	Easton, Pennsylvania	R	1
	230	Kintnersville, Pennsylvania	Rural	4
El Paso	103	Sunland Park, New Mexico	R	1
	104	Anthony, New Mexico	R	1
	105	El Paso, Texas	R	1
Evansville	44	Evansville, Indiana	R	1
	161	Henderson, Kentucky	R	1
Fairbanks	247	Fairbanks, Alaska	C	3
Fall River	188	North Tiverton, Rhode Island	C	1
	191	Fall River, Massachusetts	C	1
Fargo	198	Fargo, North Dakota	C	1
	249	Moorhead, Minnesota	R	1
Farmington	98	Shiprock, New Mexico	R	1
	99	Farmington, New Mexico	R	1

Table 1–1 (continued). ISP NETWORK AREAS

Area name	Station number	Station location	Station classification[a]	Station type
Fernandina Beach	134	St. Marys, Georgia	C	1
	231	Fernandina Beach, Florida	R	1
	232	Fernandina Beach, Florida	R	1
Fort Smith	210	Fort Smith, Arkansas	C	1
	211	Sallisaw, Oklahoma	R	1
Frankfort	106	Frankfort, Kentucky	R	3
Frannie	253	Frannie, Wyoming	R	1
Gainesville	233	Gainesville, Florida	R	3
Grand Forks	197	Grand Forks, North Dakota	R	1
	248	East Grand Forks, North Dakota	R	1
Hartford	184	Hartford, Connecticut	C	3
Hennepin	56	Hennepin, Illinois	Rural	4
Hilo	242	Hilo, Hawaii	Rural	4
Honolulu	241	Honolulu, Hawaii	R	3
Huntington	65	Huntington, West Virginia	I	1
	66	Ironton, Ohio	I	1
	67	Ashland, Kentucky	C	1
International Falls	251	International Falls, Minnesota	R	1
Jackson	269	Jackson, Mississippi	R	3
Joplin	206	Joplin, Missouri	C	1
	207	Miami, Oklahoma	R	1
Kansas City	47	Kansas City, Kansas	I	1
	48	Kansas City, Missouri	C	1
	85	Independence, Missouri	R	1
	86	Kansas City, Missouri	R	1
	87	Kansas City, Kansas	I	1
Kenosha	51	Kenosha, Wisconsin	C	1
Keyser	150	Cumberland, Maryland	C	1
	151	Bloomington, Maryland	R	1
	152	Piedmont, West Virginia	R	1
	153	Keyser, West Virginia	R	1
Laredo	117	Laredo, Texas	C	1
Lawrence	173	Salem, New Hampshire	R	1
	177	Lawrence, Massachusetts	R	1
Lebanon	171	Lebanon, New Hampshire	C	1
	180	White Plain Junction, Vermont	C	1
Leesburg	114	Leesburg, Virginia	R	4
Longview	80	Longview, Washington	R	1
	81	Rainier, Oregon	R	1
Los Angeles	239	Los Angeles, California	I	3
	240	Los Angeles, California	C	3
Louisville	39	Louisville, Kentucky	C	1
	40	Jeffersonville, Indiana	R	1
Luray	172	Luray, Virginia	Rural	4
Madawaska	193	Madawaska, Maine	R	1
May's Landing	1	May's Landing, New Jersey	Rural	4
McAllen	118	McAllen, Texas	C	1
Memphis	147	Memphis, Tennessee	R	1
	209	West Memphis, Arkansas	R	1
Milbank	245	Milbank, South Dakota	R	1
	250	Ortonville, Minnesota	R	1
Mobile	146	Mobile, Alabama	R	1
Montauk Point	144	Montauk Point, L.I., New York	R	3

Table 1–1 (continued). ISP NETWORK AREAS

Area name	Station number	Station location	Station classification[a]	Station type
Natchez	215	Vidalia, Louisiana	R	1
	235	Natchez, Mississippi	I	1
Needles	90	Davis Dam, Arizona	Rural	1
	91	Needles, California	C	1
New Orleans	218	New Orléans, Louisiana	C	1
New York	2	Perth Amboy, New Jersey	I	1
	3	Elizabeth, New Jersey	R	1
	4	Staten Island, New York	I	1
	5	Brooklyn, New York	I	1
	19	Mineola, New York	R	1
	20	White Plains, New York	R	1
	21	Greenwich, Connecticut	I	1
	229	Metuchen, New Jersey	C	1
Nogales	101	Nogales, Arizona	R	1
Oakland	95	Oakland, California	C	3
Omaha	202	Omaha, Nebraska	R	1
	203	Council Bluffs, Iowa	R	1
Oneca	130	Oneca, Florida	Rural	4
Overland Park	88	Overland Park, Kansas	Rural	4
Owensboro	41	Hawesville, Kentucky	Rural	1
	42	Tell City, Indiana	R	1
	43	Owensboro, Kentucky	R	1
Paducah	259	Metropolis, Illinois	R	1
	260	Paducah, Kentucky	I	1
Parkersburg	63	Parkersburg, West Virginia	I	1
	64	Marietta, Ohio	R	1
Pascagoula	234	Pascagoula, Mississippi	R	1
Pensacola	145	Pensacola, Florida	R	1
Petersburg	29	Petersburg, New York	Rural	4
Philadelphia	11	Philadelphia, Pennsylvania	C	1
	12	Philadelphia, Pennsylvania	R	1
	13	Philadelphia, Pennsylvania	R	2
	17	Camden, New Jersey	C	1
Phoenix	268	Phoenix, Arizona	C	3
Portland	82	Portland, Oregon	C	1
	83	Portland, Oregon	R	1
	84	Vancouver, Washington	R	1
Portsmouth	174	Portsmouth, New Hampshire	C	1
	176	Eliot, Maine	R	1
Providence	187	Pawtucket, Rhode Island	C	1
	190	Attleboro, Massachusetts	C	1
Puerto Rico	255	Guaynabo, Puerto Rico	Rural	3
	256	Salinas, Puerto Rico	Rural	4
	257	El Yungue, Puerto Rico	Rural	4
Pullman	73	Pullman, Washington	R	4
Rooseveltown	194	Rooseveltown, New York	Rural	1
St. Joseph	204	Elwood, Kansas	R	1
	205	St. Joseph, Missouri	C	1
St. Louis	28	St. Louis, Missouri	I	2
	45	St. Louis, Missouri	I	1
	46	East St. Louis, Missouri	C	1
San Ysidro	94	San Ysidro, California	Rural	1
Sarnia	166	Port Huron, Michigan	R	1

Table 1–1 (continued). ISP NETWORK AREAS

Area name	Station number	Station location	Station classification[a]	Station type
Sarnia (continued)	167	St. Clair, Michigan	R	1
	168	Sarnia, Ontario, Canada	R	1
	169	Sarnia, Ontario, Canada	R	1
Sault St. Marie	223	Sault St. Marie, Michigan	I	1
Savannah	132	Savannah, Georgia	I	1
Seattle	78	Seattle, Washington	C	3
Sherman	127	Sherman, Texas	C	1
Shreveport	212	Marshall, Texas	C	1
	213	Shreveport, Louisiana	C	1
Sioux City	200	South Sioux City, Nebraska	R	1
	201	Sioux City, Iowa	C	1
Sioux Falls	199	Sioux Falls, South Dakota	C	1
South Tahoe	96	South Tahoe, California	R	1
	97	Incline Village, Nevada	R	1
Spokane	71	Coeur D'Alene, Idaho	C	1
	72	Spokane, Washington	R	1
Spray	156	Spray, North Carolina	R	1
	157	Danville, Virginia	R	1
	222	Martinsville, Virginia	R	1
Springfield	182	Springfield, Massachusetts	C	1
	183	Thompsonville, Connecticut	C	1
Steubenville	60	Wheeling, West Virginia	C	1
	61	Steubenville, Ohio	R	1
	62	Weirton, West Virginia	R	1
	220	Mingo Junction, Ohio	I	1
	221	Steubenville, Ohio	R	1
Sumpter Township	164	Sumpter Township, Michigan	Rural	4
Tampa	68	Tampa, Florida	R	3
Texarkana	128	Texarkana, Texas	R	1
	129	Texarkana, Arkansas	C	1
The Dalles	79	The Dalles, Oregon	R	1
Ticonderoga	178	Ticonderoga, New York	R	1
	179	Shoreman, Vermont	Rural	1
Toledo	36	Toledo, Ohio	I	1
Trenton	18	Trenton, New Jersey	C	1
Vicksburg	217	Tallulah, Louisiana	C	1
	236	Vicksburg, Mississippi	C	1
Volunteer Arsenal	107	Volunteer Arsenal, Tennessee	I	3
	108	Volunteer Arsenal, Tennessee	I	3
	109	Volunteer Arsenal, Tennessee	I	3
	110	Volunteer Arsenal, Tennessee	I	3
Washington, D.C.	7	Washington, D.C.	R	2
	111	Cheverly, Maryland	Rural	1
	112	Alexandria, Virginia	C	1
	113	Washington, D.C.	C	1
Westerly	185	Pawcatuck, Connecticut	R	1
	186	Westerly, Rhode Island	C	1
Wichita Falls	126	Wichita Falls, Texas	R	1
Wilmington	8	Wilmington, Delaware	C	1
	9	Claymont, Delaware	R	1
	10	Chester, Pennsylvania	C	1
	16	Penns Grove, New Jersey	I	1
Winona	225	Winona, Minnesota	I	1

Table 1–1 (continued). ISP NETWORK AREAS

Area name	Station number	Station location	Station classification[a]	Station type
Winona (continued)	226	La Cross, Wisconsin	R	1
Youngstown	15	Sharon, Pennsylvania	I	1
	38	Youngstown, Ohio	C	1
Yuma	92	Yuma, Arizona	R	1

[a] C = commercial; I = industrial; R = residential.

2. DESCRIPTION OF MONITORING UNIT

Norman Huey and Maurice Georgevich

The monitoring unit, or "effects package," has a stand and a body to which the various components* can be attached or mounted for exposure, as shown in the photograph of Figure 2–1. The unit, designed for ease of shipping and emplacement, was constructed of aluminum for strength, minimal weight (about 45 pounds), and ease of maintenance. The static unit requires no power and little servicing.

Figure 2-1. "Effects network" sampler.

2.1 THE BASIC STRUCTURE

The body has an exterior frontal dimension of 18 inches (in.) by 18 in. by 17 in., which slopes to 13-1/2 in. at the rear. The sandwich-type roof measures 30 in. by 30 in. Each vertical wall contains a lightproof framed aluminum louvre measuring 12 in. by 12 in. by 1 in., which permits the free movement of air through the unit but does not permit the passage of light. In the front, a door consisting of a lightproof louvre is hinged at the top with keepers in open and shut positions; it permits access to the interior and still maintains the light-tight characteristic of a closed door.

Components such as the rubber strip and fabric panels, which may be affected by light, are exposed inside the body. Other components are attached to the stand or the roof: one zinc and two steel panels are attached at the rear of the roof to permit a 30-degree(°) angle of exposure to the south. Another component is an insulated silver plate mounted under the roof eave. A horizontal aluminum slide holder, 4 to 6 inches from the roof surface, permits attachments of two nylon panels and petri dishes. Two aluminum extension arms, attached to the sides of the body and to the roof, extend to a height of 62 in. for attachment of one dustfall bucket holder on one arm and one lead candle shelter and one sticky-paper jar on the other arm.

---

*Although designed for the specific components used in this project, other components may be added with minor modification.

The base of the leg assembly measures 32 in. by 32 in. at the bottom and 18 in. by 18 in. at the top, and has been designed so that the body can be rotated in between the two legs to conserve shipping space. Symmetric mounting brackets are fastened at the top of the assembly so that the body can be attached in an inverted position when the unit is shipped or can be rotated into the on-line position. To prevent penetration into the supporting surface, the entire bottom edge of the base has been framed with an aluminum angle. All parts are welded.

2.2 MONITOR COMPONENTS

The components of the monitoring unit have a two-fold purpose: to indicate potentials for individual air pollutants, and to indicate the material damage caused by air pollution in general.

To screen individual pollutant potentials in an area, dustfall buckets are used to collect settleable particulates, and "sticky" or adhesive impaction paper and dyed fabrics No. 2 and No. 6 are used to collect windblown particulates. The zinc panel, steel panels, sulfation plate, and sulfation candle are used to indicate sulfur dioxide pollution, and a silver plate is used to indicate the presence of hydrogen sulfide. Nylon panels are used in detecting the presence of severe acidic particulate pollution. Auto exhaust or nitrogen dioxide is detected by the use of dyed fabric No. 3. Rubber panels and dyed fabrics No. 4 and No. 5 are used as indicators of photochemical pollutants. The remaining four dyed fabrics, No. 1, No. 7, No. 8, and No. 9, used as detectors because they react differently from the other five listed,* were exposed to ambient air so that data might be collected about their reactions to known pollutants.

Material damage caused by air pollution in general can be measured by use of the same components. The degree of damage to zinc and steel panels can be evaluated to establish metal corrosion rates. Damage to the nine dyed fabric combinations can be used to assess dye destruction of colorfast fabrics; and damage to nylon, silver, and rubber panels may be indicative of deterioration of these three products. Sulfur dioxide traces on the sulfation candle and plate can be measured to assess potential building damage in SO_2 environments, and the degree of general soiling of materials can be gauged by dustfall buckets and "sticky" paper. In Table 2–1 are tabulated the exposure times, units of measure, and effects demonstrated by these components.

Table 2–1. EFFECTS OF POLLUTANTS ON MONITOR COMPONENTS

Component	Exposure time, days	Effects of pollutants
Steel or zinc panel	90; 365	Metal corrosion by sulfur dioxide, in microns/year (μ/yr)
Dyed fabric panel	90	Color fading by ozone or nitrogen dioxide, in National Bureau of Standards (NBS) units
Nylon panel	30; 90	Materials deterioration by acid aerosols, in fiber breaks/exposure time
Silver plate	30	Tarnishing by hydrogen sulfide, as loss of reflectance
Rubber strip	7	Cracking by ozone, as depth in millimeters/year (mm/yr)
Sulfation candle	30	Accumulation of sulfur dioxide, in milligrams of sulfur trioxide/100 square centimeters-day (mg SO_3/100 cm^2 - day)
Sulfation plate	30	Accumulation of sulfur dioxide, in micrograms of sulfur dioxide/square centimeter-day (μg SO_2/cm^2 – day)
Dustfall bucket	30	Soiling by settleable particulates, in grams/square meter-month (g/m^2-mo)
"Sticky" paper	7	Soiling by windblown particulates, in square millimeters/week (mm^2/wk)

---

*Of the five listed, No. 2 and No. 4 were used in 1967 only, and No. 5 and No. 6 in 1968 only.

2.3 MEASURING METAL CORROSION

Although metallic corrosion is considered to be caused by weathering, atmospheric pollution greatly accelerates these corrosion rates. In early studies on the rusting of iron and steel, Vernon established that rusting was scarcely a problem in highly purified air, even at relative humidities up to 99 percent.[1] When a trace of sulfur dioxide was introduced into the air, however, corrosion would initiate at about 50 percent relative humidity and increase markedly at approximately 80 percent. Solid particles of ammonium sulfate or charcoal in the presence of sulfur dioxide also greatly increased the rates.

The annual cost of the deterioration of metals amounts to many billions of dollars. Most estimates are conservative since it is rarely possible to put a price tag on the man-hours required to combat corrosion or on the loss of function of the damaged material.

2.3.1 Zinc Panel

Before exposure, the new 4 in. by 3 in. zinc panels were scrubbed twice in warm detergent solution, rinsed with water, and then rinsed with acetone. The panels were then air dried, weighed to the nearest 10 milligrams, and placed in a kraft envelope for transport to the exposure location.

At the exposure site, a single zinc panel of 99.94 percent zinc, 600 ppm lead, 50 ppm cadmium, and 40 ppm iron was mounted on the rear edge of the roof between plastic insulators at an angle of 30° from the horizontal, facing south, for exposure from January to December.

After exposure, the panel was scrubbed and rinsed in water, immersed for 5 minutes in a warm (160° to 180°F) solution of ammonium chloride, and then scrubbed and re-rinsed with water. If corrosion still remained on the panel, it was dipped for 20 seconds in a hot (200° to 212°F), 5 percent chromic acid solution, re-rinsed with water, and then rinsed in acetone to facilitate air drying before weighing.

Corrosion is measured as weight loss. Because weight loss depends on the size and shape of the panel, it is more meaningful to report results as units of depth of penetration of the corrosion. The weight loss expressed in grams is converted to penetration depth in microns per year, or μ/yr. The measurement is corrected for time exposure expressed in days.

$$\mu/\text{yr} = \frac{3{,}300\ (\text{wt in grams})}{\text{days exposed}}$$

Annual corrosion rates vary from 0.1 to 17 μ/yr.

2.3.2 Steel Panel

Before exposure, steel panels were scrubbed with detergent, rinsed several times with water, rinsed with acetone, and were then air dried. They were then dipped in concentrated hydrochloric acid to remove rust spots, rinsed several times with water, rinsed with acetone, and air dried over a hot plate. Finally, each panel was weighed to the nearest milligram and placed in a kraft envelope for shipment to the exposure site.

Two steel panels measuring 4 in. by 3 in. were exposed. The low-carbon (200 to 400 ppm), low-copper (300 to 500 ppm) steel panels were mounted on the rear edge of the roof between plastic insulators at an angle of 30° from the horizontal, facing south. One panel remained exposed for the entire year, beginning in January; the other was replaced every 3 months.

After exposure, the plates were wire-brushed to remove loose rust, rinsed in an inhibited acid solution* to remove the rest of the corrosion products, and rinsed with water, then acetone, before air drying over a hot plate. Each cleaned panel was then weighed to the nearest 10 milligrams.

The corrosion penetration rate in microns per year is calculated from the following relationship:

$$\mu/\text{yr} = \frac{3{,}300\ (\text{wt in grams})}{\text{days exposed}}$$

The annual corrosion rates varied from 0 to 108 μ/yr; the 3-month rate, from 0 to 186 μ/yr.

2.4 EVALUATING COLOR FADING

The effects of atmospheric contaminants on dyed fabrics have been studied by the American Association of Textile Chemists and Colorists (AATCC) since 1938.[2] The extent of fading damage or dye destruction has been reported by LaBarthe,[3] who showed that the fading of dyes by atmospheric contaminants can constitute a significant percentage of the complaints received by department stores and dry cleaners.

---

*Prepared by adding 2 grams of organic cationic inhibitor (Rodine 213) and 50 grams of stannous chloride to 1,000 grams of concentrated hydrochloric acid.

Results of a study carried out by the Public Health Service in cooperation with AATCC indicated that dyed fabrics can be grouped according to patterns of fading as related to certain air pollutants. More than 50 percent of the fading-prone, fabric-dye combinations* had correlation coefficients greater than 0.7 with the standard nitrogen oxide fabric.

2.4.1 Causes

Some of the causes of fading are strong sunlight, washing, heat, and humidity. Recently, ozone and oxides of nitrogen have been suspected as causes of dye fading; in fact, AATCC has developed two standard dyed fabrics, one sensitive to nitrogen oxide and the other to ozone.

2.4.2 Dyed-Fabric Panels

In this project nine different 2 in. by 2 in. dyed-fabric panels were exposed for 3-month periods, January through March, April through June, July through September, and October through December. In Table 2–2 are described the dye-fabric combinations. In 1967, only the first four dyed fabrics were exposed; in 1968, only seven were exposed. Fabrics No. 2 and No. 4 were not exposed.

Table 2–2. DYE-FABRIC COMBINATIONS FOR NINE COMPONENTS

Fabric number	Description of dyed fabric
1	Cotton muslin dyed with 1% C.I. Direct Blue 86
2	Orlon dyed with 0.25% Disperse Blue 3
3	Acetate dyed with Disperse Blue 3
4	Acetate dyed with Disperse Blue 27, Disperse Red 35, and Disperse Yellow 37
5	Triacetate dyed with same three as No. 4
6	Bleached muslin with no dye added
7	Wool flannel with Acid Red 151
8	Cotton muslin dyed with 0.45% Disperse Blue 3
9	Nylon taffeta dyed with 1% Disperse Blue 3

Samples of each of the nine dyed fabrics were glued to 2-3/4-inch-square pieces of cardboard with 2-inch cutouts by using silicone contact adhesive. Before exposure, the appearance of each fabric was measured with a color-difference meter containing tristimulus filter-photocell combinations. After exposure, each was measured again with the meter. The differences in the "before" and "after" appearances were calculated and reported in NBS color-difference units (ΔE).

Dye-fabric combination No. 1 faded, but the cause of fading is not fully understood. Combination No. 2 is stable; color changes were probably the result of soiling.

Dye-fabric combination No. 3 is an AATCC standard control fabric known to be sensitive to oxides of nitrogen.[4] Combinations No. 4 and No. 5, also standard control fabrics, are both known to be sensitive to ozone.[4]

Dye-fabric No. 6 is a bleached muslin fabric with no dye added; it was used as an indicator of soiling. Combinations No. 7, No. 8, and No. 9 did not indicate specific effects caused by individual pollutants.

2.5 MEASURING MATERIAL DETERIORATION

Nylon, silver, and rubber panels were used as indicators of materials deterioration caused by air pollutants.

---

*Hopefully, future studies will indicate that relatively few dyed-fabric combinations will be needed to estimate damages to materials.

2.5.1 Nylon Panel

The life of nylon goods, particularly women's hose, is often shortened by air pollution.[5] Incidences of severe nylon hose deterioration have been reported in the United States, Canada, England, and aboard some ships. The primary cause has been called "acidic soot." The probable destructive agents are hot particles in smoke, drops of sulfuric acid in soot, phenolic particles and aldehydes from internal combustion engines, and acid aerosols, nitrogen oxides, and solvent vapors from other sources.

A sample of good quality (15 denier) nylon hose is stretched and glued between the halves of a standard Polaroid slide mount. The 3-1/4 in. by 2-3/8 in. panel has an exposure area of 7.7 square inches. One of these panels is exposed on the top of the roof in a horizontal position for 30 days and another for 90 days.

After exposure, the samples are examined for breaks in the fiber. An image of the samples can be projected onto a screen and examined macroscopically or, with the aid of a low-power objective, microscopically. Monthly values ranged from 0 to 100 defects.

2.5.2 Silver Plate

In ancient times, when the atmosphere was relatively free of sulfur compounds, silver remained bright and untarnished for long periods of time. Air pollutants, especially hydrogen sulfide and sulfur dioxide, affect not only the aesthetic but also the electrical properties of silver.[6] For example, increased resistance across closed silver contacts tarnished by sulfides may freeze the contacts or cause transmission failure.

Although it is impossible to calculate precisely the economic loss in maintenance costs due to deterioration of electrical contacts, it must be considerable. Gold and other precious metals are often substituted for other contact materials because they are less reactive than silver and possibly because of silver's deterioration by air pollutants. At present, the annual cost of gold used for electrical contacts is estimated at $15 million;[6] if silver were used, the annual savings for the nation would be about $14.8 million.

Before exposure, the reflectance of each silver panel was measured with a photovolt reflection meter (Model 610 with a 610-D search unit)* and with a green tristimulus filter.

At the exposure site, a single silverplated place plate (William A. Rogers, No. 1120, 6 in. in diameter) was exposed monthly in an upside down position under the overhanging roof of the shelter to protect the silver film from particulates and precipitation.

After exposure, the reflectance was again measured, and the reflectance loss was calculated as the percent loss per month of exposure. The precision of the laboratory technique† was within 2 percent of the recorded reflection loss.

2.5.3 Rubber Panel

Atmospheric oxygen, especially ozone, can cause rubber cracking. In 1946, the attack of natural rubber by light-energizing oxygen and ozone was reported by Crabtree and Kemp.[7,8] Unsaturated elastomers** are attacked by ozone at the double bond in the carbon-carbon chain;[9] if the chain under stress breaks, it leaves its neighbors under additional strain. Synthetic rubber, such as unsaturated butadiene-styrene or butadiene-acrylonitrile, is affected in the same manner; neoprene, although unsaturated, resists ozone attack, presumably because of the chlorine bond adjacent to the double bond.

The measurement of rubber cracking rate furnishes information on the relative life of rubber products in different areas. This measurement has been accepted by some investigators as an indirect measurement of ozone. The most significant variables affecting the degree of cracking are the rubber formulation, the amount of stress placed on the rubber, and the amount of ozone contacted by the rubber. By controlling the first two variables, the relative amount of ozone can be approximated.

Natural rubber, ozone-sensitive test slabs measuring 9 in. by 9 in. by 1/6 in., are cut into 8-millimeter-wide strips. (The length is not critical; about 2 in. is sufficient.) These strips are exposed for 1 week under a constant stress caused by the gravitational pull of a 360-gram lead weight. The rubber strip is exposed inside the body of the "effects package" by clamping one end to the top of the sampler and the other to the lead weight.

After exposure, the rubber strips are prepared for microscopic examination. A small corner is cut off to identify the edge of the strip, and the strip is cut in half lengthwise. The half with the corner cut is placed under a 50X lens so that the freshly cut edge may be observed. The cut strip is stretched slightly to make crack depth easier to measure; only the cracks within 1/2 in. from the center of the strip length are measured since the cracking of the strip may be inconsistent at the ends where the strips are fastened. The depths of nine consecutive cracks are measured by using precalibrated eyepieces in the microscope; the average of the nine is calculated and reported.

---

*Mention of a specific company or product does not constitute endorsement by the Environmental Protection Agency.

†To our knowledge, no studies have been conducted that provide an objective estimate of precision of replicate samples.

**Saturated polymers are highly resistant to ozone attack.

According to Vega and Seymour,[10] if the exposure is 7 days, the average ozone concentration can be approximated in parts per hundred million by multiplying the average crack depth in millimeters by six. Replicate exposures of rubber strips to the atmosphere have suggested that rubber cracking exhibits a coefficient of variation of about 10 percent; this imolies that approximately 68 percent of replicate observations should be within ±10 percent of the average.

2.6 MEASURING SULFATION

The measurement of sulfation was introduced in the early 1930's in England to give a direct index of the activity of sulfur impurities, such as in the attack of polluted air upon building stone, exposed metal, and the like.

Sulfur oxides in the presence of moisture convert the calcium and magnesium carbonates of stone into soluble sulfates, which are either washed away or dried to form hydrated crystals that are of greater volume than those in solution. This formation causes increased internal pressures within the material, and results in the formation of encrustations and friable scales that produce blistering, flaking, and exfoliation.

Sulfur oxides are also given much credit for increased metal corrosion rates. It has been reported that railway tracks wear more rapidly in industrial than in nonindustrial atmospheres.[11] Leathers used in book-binding have been found to accumulate up to nearly 5 percent sulfate; paper discolors and becomes brittle, and artwork such as paintings undergoes color changes as well as canvas deterioration.

2.6.1 Sulfation Candle

A sulfation candle was exposed monthly. The candle surface–prepared by coating it with lead dioxide, which is sensitive to sulfur dioxide–is a cylinder 10 centimeters in height with a total reactive area of 100 square centimeters. When atmospheric sulfur dioxide comes in contact with the lead dioxide on the candle, it is converted to lead sulfate.

After exposure, the lead sulfate is removed by adding sodium carbonate to the surface. Then the amount of soluble sodium sulfate formed is measured turbidemetrically as barium sulfate.[12]

The amount of sulfur dioxide collected per 100 square centimeters of surface area per day–measured as barium sulfate–was converted to and reported as the equivalent amount of sulfur trioxide (mg of $SO_3/100\ cm^2$-day). Past measurements by similar methods yielded an empirical relationship between sulfation and sulfur dioxide concentrations: sulfur dioxide in ppm can be estimated from milligrams of sulfur trioxide per square centimeter per day by multiplying the sulfation rate by 0.035;[13] the daily measurements ranged from 0.1 to 15 milligrams. Above 0.5 milligram, precision of about ±10 percent can be expected, but below 0.5 milligram, the error may be as much as 0.2 milligram.

2.6.2 Sulfation Plate

In 1968 a comparison study of the plate and sulfation candle methods of detection was made.[13] In the plate method, sulfation was measured monthly by a sulfation plate exposed upside down in a small petri dish. Both the plate and the candle use the same materials and have identical reactions, but the plate has a much smaller surface, only 18 square centimeters compared to the 100 of the candle. Furthermore, the plate is more stable, easier to fabricate and analyze, and less expensive to expose than the candle.

The amount of sulfate, determined the same way as for the candle, was converted to and reported as the amount of sulfur dioxide per square centimeter per day (μg of SO_2/cm^2-day). The factor used to convert the micrograms of sulfur dioxide to milligrams of sulfur trioxide is 0.125.

2.7 EVALUATING SOILING

The soiling effects of particulates are usually noticed by the public. Buildings, automobiles, outer clothing garments, windows, curtains, drapes, walls, floors, and rugs are among the many things soiled by both settleable and windblown particulates.

2.7.1 Dustfall Bucket

Particulates settled out of the atmosphere by gravity[14] are collected monthly in an open-top Tupperware 5-quart canister with an area of 0.029 square meter. The particles collected are generally greater than 20 microns in diameter and, because of their size, settle relatively close to their points of origin.

After exposure of the canister, its contents are transferred to a glass beaker, the water is evaporated, and the remaining solids are weighed. The results are reported as the equivalent weight of material (in grams) that settled over a surface of 1 square meter during the month. The factor for converting grams per square meter to tons per square mile per month is 2.86.

Values ranged from 0 to 100 grams per square meter per month. An investigation by Nader[15] indicated that replicate dust-bucket collections exhibit a coefficient of variation of approximately 15 percent.

2.7.2 Sticky Paper

Particulates in the size range of 20 to 100 microns are collected on sticky paper.[16] These particulates, which indicate the soiling potential of the atmosphere, are carried by wind from a source of pollution and captured by adhesive-coated paper mounted on a cylinder perpendicular to the earth's surface.

The sampler is called an adhesive impactor or sticky-paper sampler. It is prepared by wrapping a 2-in. strip of contact paper (Fassons Pli-a-Print, R-135) around a jar (diameter, 2-3/4 in.; height, 3-1/4 in.) with the adhesive side out. Only the north direction is marked on the paper.

After an exposure of 7 days, the sampler is sprayed with clear enamel to fix the particulates and to eliminate entrapment of others.

In the laboratory, the particulate loading (particles/mm^2) at eight points, representing eight directions of the compass, is estimated by comparing the sample to a series of standards–photographs of samples previously counted microscopically and ranging from 15 to 100 particles per square millimeter.

Results of extensive sampling[17] using sticky paper indicate that replicate samples may exhibit a variation of 20 percent.

BLANK PAGE

3. DISCUSSION OF PROJECT DATA

James Cavender

Although the primary purpose of the project is to provide data for internal use, data tabulations of the sampling results for all components at all stations are routinely published at 6-month intervals and are distributed to cooperating agencies for use in their air pollution control programs.

3.1 FREQUENCY DISTRIBUTIONS FOR ALL COMPONENTS

These data are summarized for 1967 and 1968 in Table B–1 of Appendix B. The table gives the smallest, largest, and average value (arithmetic mean) for each year. An annual average value is recorded only for those stations that were on-line for at least 6 months. For the zinc and steel components, exposed for a year, only the annual results are shown.

Frequency distributions of the 1967 and 1968 results are given in Table 3–1. These include all values from all components at all stations and show the percent of values that were less than the values specified in the table; for example, 10 percent of all zinc results for the entire network in 1967 were less than 0.43 micron per year.

Little difference was detected between the 1967 and 1968 distributions. For 1968, dyed fabrics No. 1 and No. 3 results were consistently larger than for 1967, but differences were small; sticky-paper results were also slightly larger for 1968 than for 1967. In contrast, results of the rubber panel, silver plate, and sulfation candle were slightly less in 1968 than in 1967, again, the differences were not significant.

Some of the distribution differences can be explained by the fact that the number of stations and corresponding measurements were not the same for 1967 and 1968. Six new components were added to the monitoring unit in 1968; these were dyed fabrics No. 5, No. 6, No. 7, No. 8, No. 9, and a sulfation plate. Two components, however, dyed fabrics No. 2 and No. 4, were exposed in 1967 but not in 1968. Thus, the 1968 unit had 18 components compared to 14 in 1967.

3.1.1 Background Stations

Frequency distributions of all background stations computed for 1968 are presented in Table 3–2. In the majority of cases, significantly lower values were recorded at the background sites. The most notable exceptions are the results for dyed fabrics No. 5, No. 8, and the rubber panel; the consistently higher backgrounds, particularly for No. 5 and the rubber panel, may be partially explained by the fact that both components are sensitive to ozone.

Other studies have indicated that ozone exists, in limited amounts, even in so-called clean areas, and that the background level may account for the rubber cracking and color fading at these sites. The fact that lesser amounts of cracking and fading occurred in more polluted areas may be due to decreased ozone levels–not necessarily a decreased number of oxidants–caused by chemical reactions of active ozone with other pollutants, or it may be due to substantial decreases in the amount of sunlight, which is needed for the formation of ozone.

3.1.2 Stations by Classification

Stations were grouped according to four area classifications–industrial, commercial, residential, or rural (Section 1.3.1). Frequency distributions of the 1968 annual averages were computed for each of the four.

The classifications cover a range of pollution impacts. An industrial area would normally be expected to have multiple pollution sources and highest overall levels of emissions. Similarly, commercial classification implies a business area with considerable activity and probably a few pollutant sources. Residential and rural are considered areas with lowest emission levels.

Frequency distributions for the four classifications are presented in Tables 3–3, 3–4, 3–5, and 3–6. The highest levels were generally found at the industrial sites. Commercial and residential sites generally had lower levels, and rural sites, the lowest. These results, expected because of the population density and emission levels of the site locations, lend validity to the monitoring unit's capability for pinpointing pollution levels of varying magnitudes.

There were a few exceptions to the general trend–highest levels at industrial sites and lowest at rural sites. The most notable was the effect upon the rubber panel and upon fabric No. 5; both showed a complete reversal of the normal pattern. Distribution of these two components revealed highest results at rural sites and succeedingly lower values at residential, commercial, and industrial sites. Reasons for these apparent inconsistencies were brought out in the preceding subsection.

In summary, based on the frequency distribution by station classification, the components were selective to the degree that pollutants or their effects were detected at levels of varying magnitudes.

Table 3–1. FREQUENCY DISTRIBUTION OF MEASUREMENTS 1967–1968

Component	Year	No. of samples	Minimum	% of values less than stated value					Maximum
				10	25	50	75	90	
Zinc (μ/yr)	1967	124	0.16	0.43	0.79	1.42	2.94	4.36	17.00
	1968	216	0.10	0.64	1.05	1.87	3.53	4.93	15.40
Annual steel (μ/yr)	1967	129	0	4	18	31	44	58	107
	1968	204	0	6	16	29	42	53	88
Quarterly steel (μ/yr)	1967	558	0	2	17	45	68	87	185
	1968	874	0	3	11	38	67	89	194
Dye fabric No. 1 (Color difference, NBS units)	1967	574	6.2	11.7	13.7	15.8	17.6	19.2	27.1
	1968	839	8.7	15.3	17.1	19.0	21.0	22.8	29.3
Dye fabric No. 2 (Color difference, NBS units)	1967	569	0.5	1.0	1.4	2.4	3.9	6.0	17.9
	1968	.....	...	....	....	....	....	....	......
Dye fabric No. 3 (Color difference, NBS units)	1967	583	6.2	12.3	15.3	19.6	26.6	35.1	53.2
	1968	822	6.8	16.2	19.7	23.8	31.0	41.1	62.8
Dye fabric No. 4 (Color difference, NBS units)	1967	518	6.5	10.5	12.8	17.2	22.6	26.3	37.4
	1968	.....	...	....	....	....	....	....	......
Dye fabric No. 5 (Color difference, NBS units)	1967	.....	...	....	....	....	....	....	......
	1968	796	2.3	6.1	8.0	11.0	13.4	15.2	22.6
Dye fabric No. 6 (Color difference, NBS units)	1967	.....	...	....	....	....	....	....	......
	1968	830	2.2	5.0	6.4	8.3	10.5	12.8	25.5
Dye fabric No. 7 (Color difference, NBS units)	1967	.....	...	....	....	....	....	....	......
	1968	834	1.8	3.4	5.3	7.9	11.0	14.1	24.2
Dye fabric No. 8 (Color difference, NBS units)	1967	.....	...	....	....	....	....	....	......
	1968	826	1.4	4.3	5.8	7.8	9.9	13.2	14.1
Dye fabric No. 9 (Color difference, NBS units)	1967	.....	...	....	....	....	....	....	......
	1968	844	4.2	12.1	15.5	20.3	26.1	30.7	43.0
Silver tarnishing (% decrease, reflectance)	1967	1,749	1	24	40	58	76	86	100
	1968	2,835	0	22	36	55	75	85	100
Sulfation candle (mg SO_3/100 cm^2-day)	1967	1,758	0	0	0.2	0.5	1.2	2.2	10.7
	1968	2,787	0	0	0	0.4	1.0	1.7	8.7
Sulfation plate ($\mu gSO_2/cm^2$-day)[a]	1967	.....	...	....	....	....	....	....	......
	1968	2,587	0	0	0	0.4	0.9	1.8	9.0

Dustfall (g/m^2-mo)	1967	1,735	0.1	1.6	2.6	4.6	7.8	12.2	101.1
	1968	2,807	0.1	1.5	2.6	4.4	6.9	10.8	161.2
Monthly nylon (Total No. of defects)	1967	1,728	0	0	0	0	0	2	185
	1968	2,849	0	0	0	0	0	2	223
Quarterly nylon (Total No. of defects)	1967	540	0	0	0	0	1	7	235
	1968	921	0	0	0	0	1	5	255
Rubber deterioration (Average crack depth, μ)	1967	7,202	0	0	0	58	172	260	663
	1968	11,349	0	0	0	48	144	220	683
Sticky paper (particles/mm^2)	1967	1,785	0	5	12	24	40	57	91
	1968	2,550	1	6	15	29	46	63	93

[a] Sulfation plate measurements are reported in $\mu g\ SO_2/cm^2$-day. These values have been converted to $mg\ SO_3/100\ cm^2$-day for comparison with sulfation candle values ($mg\ SO_3/100\ cm^2$-day = .125 $\mu g\ SO_2/cm^2$-day).

Table 3–2. FREQUENCY DISTRIBUTION OF BACKGROUND STATIONS 1968

Component	No. of samples	Minimum	% of values less than stated value					Maximum
			10	25	50	75	90	
Annual zinc (μ/yr)	50	0.5	1.0	1.0	1.2	1.4	3.0	3.4
Annual steel (μ/yr)	10	13	20	24	30	41	47	55
Quarterly steel (μ/yr)	39	0	6	10	29	47	65	114
Fabric No. 1 (color difference, NBS units)	53	9.7	14.0	15.8	18.0	19.9	20.9	23.6
Fabric No. 3 (color difference, NBS units)	37	8.4	13.6	16.5	20.5	22.6	29.2	36.8
Fabric No. 5 (color difference, NBS units)	39	7.9	8.9	11.0	12.8	16.2	18.6	22.6
Fabric No. 6 (color difference, NBS units)	56	3.0	3.9	4.7	6.1	8.2	10.6	12.9
Fabric No. 7 (color difference, NBS units)	56	1.9	2.7	4.9	6.5	8.5	11.1	16.7
Fabric No. 8 (color difference, NBS units)	53	1.4	5.0	7.0	9.3	14.1	18.2	23.4
Fabric No. 9 (color difference, NBS units)	56	4.2	8.5	13.9	17.9	25.9	29.3	35.2
Quarterly nylon (total No. of defects)	43	0	0	0	0	0	3	16
Monthly nylon (total No. of defects)	137	0	0	0	0	0	0	2
Silver tarnish (% decrease, reflectance)	136	4	17	27	35	45	55	69
Dustfall (g/m^2-mo)	133	0.2	0.9	1.4	2.2	3.2	4.2	13.6
Sulfation candle (mg SO_3/100 cm^2-day)	133	0	0	0	0.1	0.3	0.5	1.0
Sulfation plate (μg SO_2/cm^2-day)[a]	124	0	0	0	0.1	0.2	0.4	0.9
Rubber deterioration (average crack depth, μ)	515	0	0	0	104	217	315	612
Sticky paper (particles/mm^2)	113	1	2	3	7	16	31	46

[a] Sulfation plate measurements are reported in μg SO_2/cm^2-day. These values have been converted to mg SO_3/100 cm^2-day for comparison with sulfation candle values (mg SO_3/100 cm^2-day = .125 μg SO_2/cm^2-day).

Table 3–3. FREQUENCY DISTRIBUTION OF INDUSTRIAL STATIONS
1968

Component	No. of samples	Minimum	% of values less than stated values					Maximum
			10	25	50	75	90	
Annual zinc (μ/yr)	32	0.9	1.0	1.6	2.4	4.5	6.0	15.4
Annual steel (μ/yr)	29	12	21	27	40	54	61	88
Quarterly steel (μ/yr)	38	10	18	35	58	77	104	139
Fabric No. 1 (color difference, NBS units)	37	16.3	17.4	18.5	20.0	22.2	23.2	26.6
Fabric No. 3 (color difference, NBS units)	37	11.6	18.6	23.7	27.8	37.0	41.5	57.6
Fabric No. 5 (color difference, NBS units)	36	5.8	7.2	8.8	10.3	11.2	11.6	14.2
Fabric No. 6 (color difference, NBS units)	37	5.0	6.2	7.3	9.2	11.4	12.2	17.4
Fabric No. 7 (color difference, NBS units)	37	3.3	6.2	7.3	9.2	11.0	13.8	14.8
Fabric No. 8 (color difference, NBS units)	38	4.4	6.0	6.6	8.3	10.0	11.5	14.9
Fabric No. 9 (color difference, NBS units)	38	16.3	17.6	21.1	23.1	24.6	26.2	33.6
Quarterly nylon (total No. of defects)	38	0	0	0	0	4	24	99
Monthly nylon (total No. of defects)	38	0	0	0	0	1	8	34
Silver tarnish (% decrease, reflectance)	38	12	42	53	64	74	87	90
Dustfall (g/m^2-mo)	38	3.0	4.0	4.7	6.6	9.0	12.5	25.9
Sulfation candle (mg SO_3/100 cm^2-day)	38	0	0.1	0.2	0.7	1.5	2.9	4.7
Sulfation plate (μg SO_2/cm^2-day)[a]	36	0	0.1	0.2	0.5	1.2	2.0	5.0
Rubber deterioration (average crack depth, μ)	35	25	40	52	64	84	99	201
Sticky paper (particles/mm^2)	34	5	8	26	37	48	64	80

[a] Sulfation plate measurements are reported in μg SO_2/cm^2-day. These values have been converted to mg SO_3/100 cm^2-day for comparison with sulfation candle values (mg SO_3/100 cm^2-day = .125 μg SO_2/cm^2-day).

Table 3–4. FREQUENCY DISTRIBUTION OF COMMERCIAL STATIONS
1968

Component	No. of samples	Minimum	% of values less than stated value					Maximum
			10	25	50	75	90	
Annual zinc (μ/yr)	64	0.2	0.6	0.9	2.1	3.7	5.2	7.1
Annual steel (μ/yr)	55	1	4	8	25	38	50	53
Quarterly steel (μ/yr)	67	1	4	13	35	70	85	142
Fabric No. 1 (color difference, NBS units)	68	12.7	17.3	18.2	19.3	20.5	21.4	24.0
Fabric No. 3 (color difference, NBS units)	65	17.8	18.7	21.7	25.4	36.6	42.5	53.8
Fabric No. 5 (color difference, NBS units)	67	4.0	7.3	9.1	10.5	11.6	13.1	15.1
Fabric No. 6 (color difference, NBS units)	66	6.4	7.0	7.8	9.5	10.8	12.5	19.6
Fabric No. 7 (color difference, NBS units)	66	4.7	6.6	7.4	8.7	10.7	12.0	18.2
Fabric No. 8 (color difference, NBS units)	67	5.2	6.0	6.6	7.6	8.9	13.4	15.3
Fabric No. 9 (color difference, NBS units)	67	10.3	17.2	19.5	21.7	23.8	25.9	37.4
Quarterly nylon (total No. of defects)	70	0	0	0	0	2	8	59
Monthly nylon (total No. of defects)	71	0	0	0	0	0	2	20
Silver tarnish (% decrease, reflectance)	70	9	25	41	54	69	77	89
Dustfall (g/m^2-mo)	67	2.0	3.0	3.6	5.1	7.6	9.5	27.8
Sulfation candle (mg SO_3/100 cm^2-day)	70	0	0	0.1	0.4	1.2	1.6	3.3
Sulfation plate (μg SO_2/cm^2-day)[a]	67	0	0	0.1	0.4	1.0	1.5	3.6
Rubber deterioration (average crack depth, μ)	60	9	44	57	74	96	116	194
Sticky paper (particles/mm^2)	64	14	20	24	34	47	57	74

[a] Sulfation plate measurements are reported in μg SO_2/cm^2-day. These values have been converted to mg SO_3/100 cm^2-day for comparison with sulfation candle values (mg SO_3/100 cm^2-day = .125 μg SO_2/cm^2-day).

Table 3–5. FREQUENCY DISTRIBUTION OF RESIDENTIAL STATIONS
1968

Component	No. of samples	Minimum	% of values less than stated value					Maximum
			10	25	50	75	90	
Annual zinc (μ/yr)	103	0.1	0.4	0.9	1.6	2.8	4.6	15.1
Annual steel (μ/yr)	104	0	4	13	26	41	52	67
Quarterly steel (μ/yr)	124	0.5	2	3	28	64	84	120
Fabric No. 1 (color difference, NBS units)	116	13.5	16.5	17.7	18.6	20.1	21.6	24.6
Fabric No. 3 (color difference, NBS units)	117	10.6	15.6	18.7	22.6	26.4	34.8	50.2
Fabric No. 5 (color difference, NBS units)	114	5.6	8.4	9.6	10.9	12.4	13.8	15.8
Fabric No. 6 (color difference, NBS units)	116	3.4	5.6	6.5	7.8	9.9	11.4	14.4
Fabric No. 7 (color difference, NBS units)	117	3.9	5.1	6.2	7.7	9.6	11.7	14.8
Fabric No. 8 (color difference, NBS units)	117	4.5	5.7	6.6	7.6	9.1	11.1	15.8
Fabric No. 9 (color difference, NBS units)	120	9.5	12.8	17.8	20.1	23.6	25.6	30.0
Quarterly nylon (total No. of defects)	123	0	0	0	0	1	2	30
Monthly nylon (total No. of defects)	122	0	0	0	0	0	1	12
Silver tarnish (% decrease, reflectance)	124	5	22	35	53	68	81	93
Dustfall (g/m^2-mo)	123	0.8	2.1	2.7	4.5	6.0	8.2	29.0
Sulfation candle (mg SO_3/100 cm^2-day)	123	0	0	0.1	0.2	0.9	1.5	2.5
Sulfation plate (μg SO_2/cm^2-day)[a]	120	0	0	0.1	0.2	0.8	1.4	2.2
Rubber deterioration (average crack depth, μ)	111	21	51	62	80	105	129	210
Sticky paper (particles/mm^2)	116	4	10	17	28	37	52	75

[a] Sulfation plate measurements are reported in μg SO_2/cm^2-day. These values have been converted to mg SO_3/100 cm^2-day for comparison with sulfation candle values (mg SO_3/100 cm^2-day = .125 μg SO_2/cm^2-day).

Table 3–6. FREQUENCY DISTRIBUTION OF RURAL STATIONS
1968

Component	No. of samples	Minimum	% of values less than stated value					Maximum
			10	25	50	75	90	
Annual zinc (μ/yr)	16	0.2	0.5	0.9	1.3	2.5	3.8	4.2
Annual steel (μ/yr)	16	3	13	26	31	40	41	55
Quarterly steel (μ/yr)	21	1	2	16	31	44	65	132
Fabric No. 1 (color difference, NBS units)	19	11.5	13.0	16.8	18.2	18.9	20.0	22.9
Fabric No. 3 (color difference, NBS units)	19	9.0	9.2	17.5	20.6	25.3	28.2	41.4
Fabric No. 5 (color difference, NBS units)	20	8.8	9.6	11.9	13.1	13.9	14.7	17.8
Fabric No. 6 (color difference, NBS units)	19	3.9	4.0	4.7	6.8	8.2	8.9	10.2
Fabric No. 7 (color difference, NBS units)	19	3.9	4.3	5.8	7.1	7.6	9.4	10.7
Fabric No. 8 (color difference, NBS units)	17	4.9	6.0	6.7	9.7	12.0	13.6	17.9
Fabric No. 9 (color difference, NBS units)	19	7.7	9.4	15.7	19.0	21.8	25.3	28.8
Quarterly nylon (total No. of defects)	22	0	0	0	0	1	4	14
Monthly nylon (total No. of defects)	21	0	0	0	0	0	0	1
Silver tarnish (% decrease, reflectance)	22	6	25	30	41	50	60	72
Dustfall (g/m^2-mo)	20	0.2	0.8	1.7	2.3	2.8	3.7	23.2
Sulfation candle (mg SO_3/100 cm^2-day)	22	0	0	0.1	0.1	0.3	0.7	1.1
Sulfation plate (μg SO_2/cm^2-day)[a]	20	0	0	0.1	0.1	0.4	0.6	0.8
Rubber deterioration (average crack depth, μ)	17	0	59	84	110	126	196	316
Sticky paper (particles/mm^2)	17	2	3	3	9	23	26	32

[a] Sulfation plate measurements are reported in μg SO_2/cm^2-day. These values have been converted to mg SO_3/100 cm^2-day for comparison with sulfation candle values (mg SO_3/100 cm^2-day = .125 μg SO_2/cm^2-day).

3.2 SEASONAL EFFECTS ON COMPONENTS

Monthly and quarterly frequency distributions were computed to investigate seasonal effects on individual components. Seasonal effects were noted for several components.

Deterioration of rubber and fabrics No. 4 and No. 5 increased during the two warmer seasons, April through June and July through September. Figure 3–1 is a plot of the distribution of the 50th percentile of the rubber deterioration results by month; plots are not shown for fabrics No. 4 and No. 5 because they follow the same pattern but give less information since they had quarterly instead of monthly exposures. All three components measure ozone, and because the warmer period of the year is when ozone levels are highest, the seasonal trend was expected. The bimodal curve with the maximum in April is not a typical oxidant curve and is, therefore, somewhat confusing; the explanation probably is that the seasonal pattern is not the same for ozone as it is for oxidants.

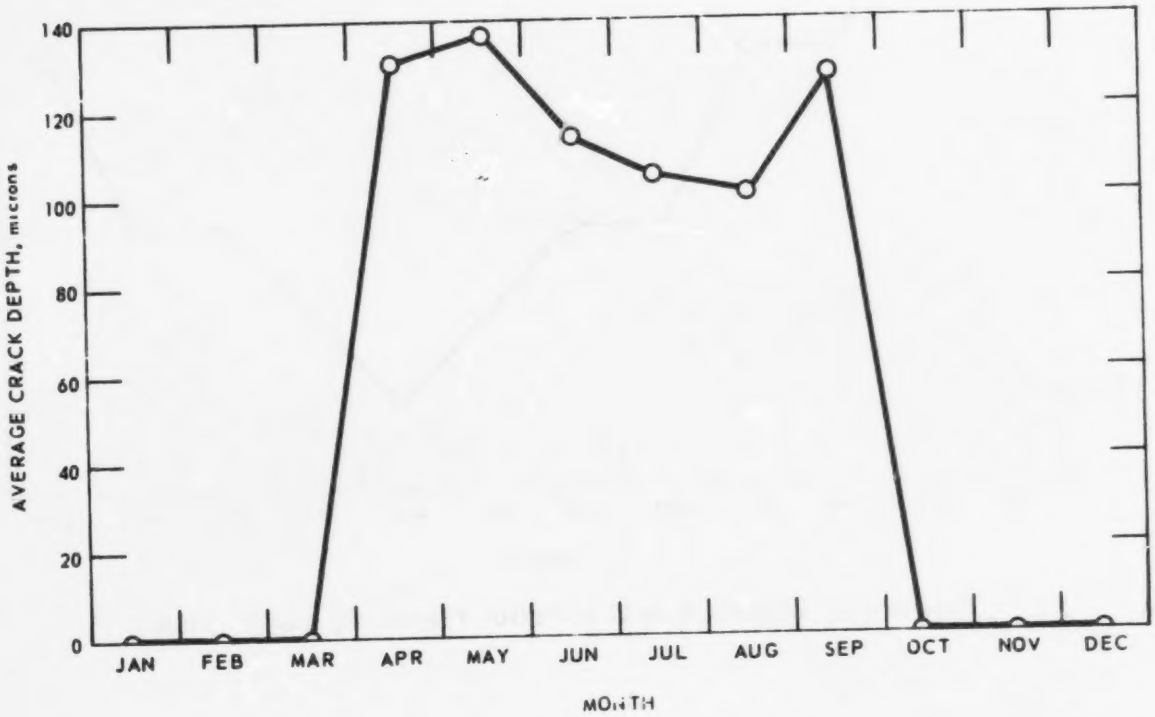


Figure 3-1. Distribution of rubber deterioration results by month, 1968.

Lead peroxide candles and plates showed highest levels during the colder months. Maximum levels were recorded in January. This is to be expected, since the instruments are sensitive to sulfur dioxide, which is normally emitted in larger amounts during the colder months because more fuel is burned in heating. A plot of the sulfation candle results is in Figure 3–2; lead plate results are not given because they are identical to the candle results.

Dustfall and sticky-paper values, highest during March and April, may be related to higher windspeeds in the spring that increase movement of natural and man-made particulates. Figure 3–3 presents the distribution of dustfall by month. Sticky paper followed the same pattern and was therefore not presented.

Two additional components, dye fabrics No. 8 and No. 9, recorded highest levels from July to September. These seasonal effects, which are not as readily explainable as the others, are discussed in more detail in the statistical evaluation section. Figures 3–4 and 3–5 are plots of these distributions.

Seasonal effects were not noted for components not discussed here.

3.3 ANNUAL AVERAGES FOR ALL COMPONENTS

The annual average for each component was calculated for each station for 1967 and 1968. It was arbitrarily decided that to be included, a station had to have been on-line for at least half of the year. The annual averages

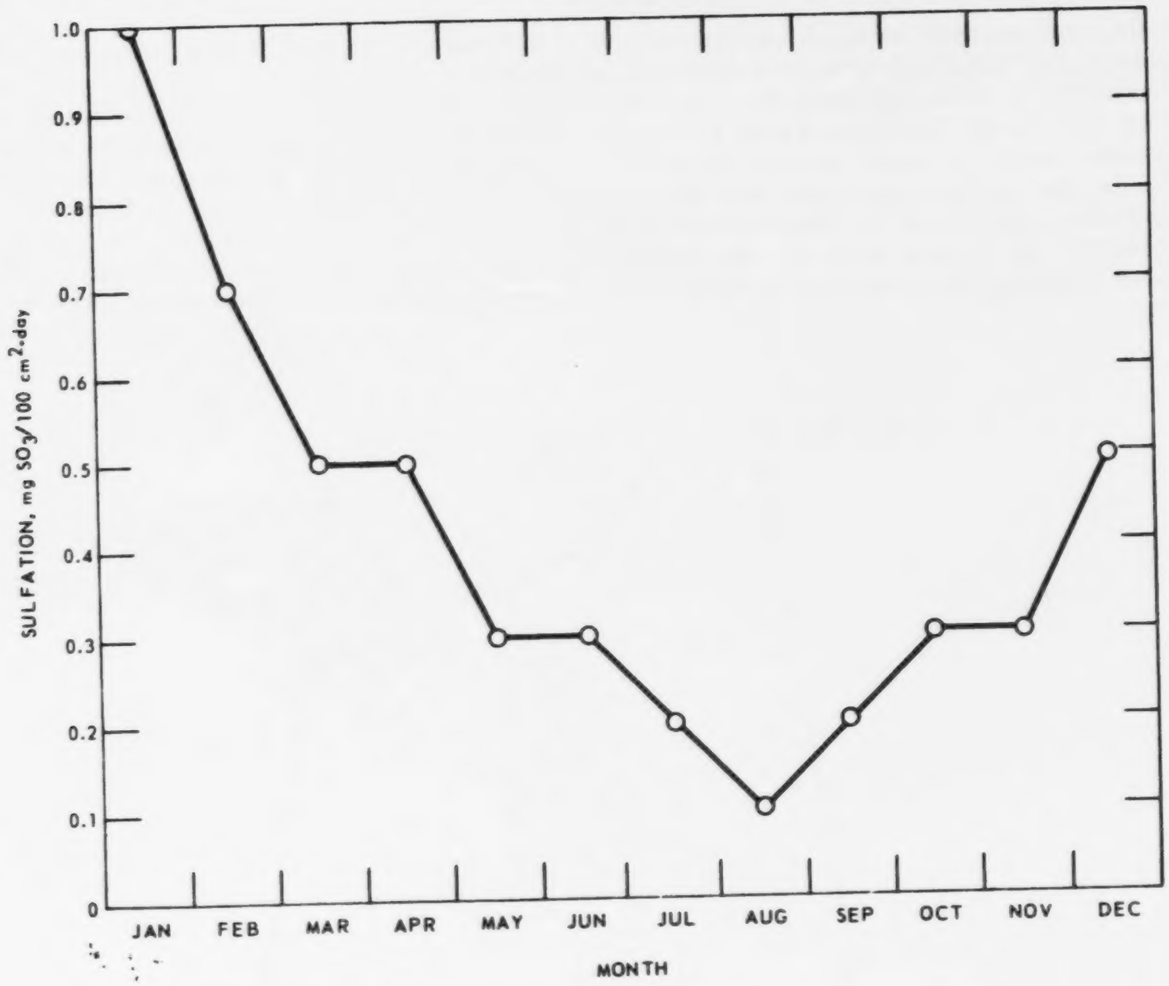


Figure 3-2. Distribution of sulfation results by month, 1968.

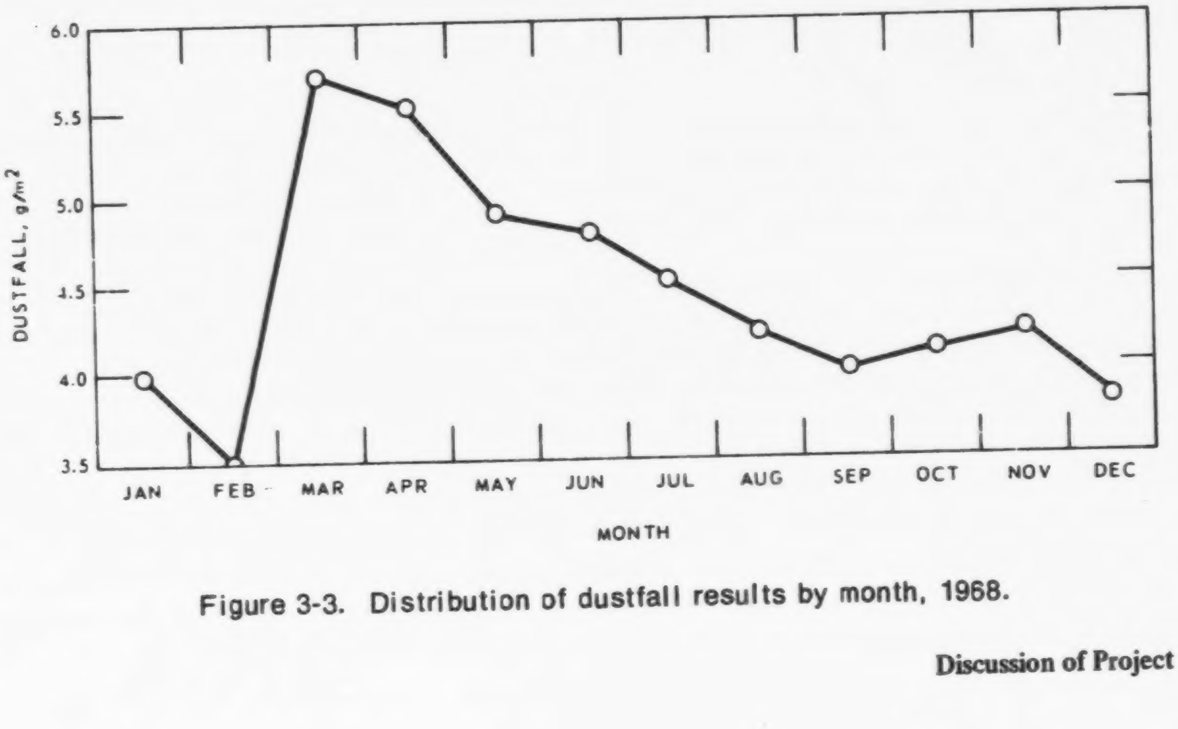


Figure 3-3. Distribution of dustfall results by month, 1968.

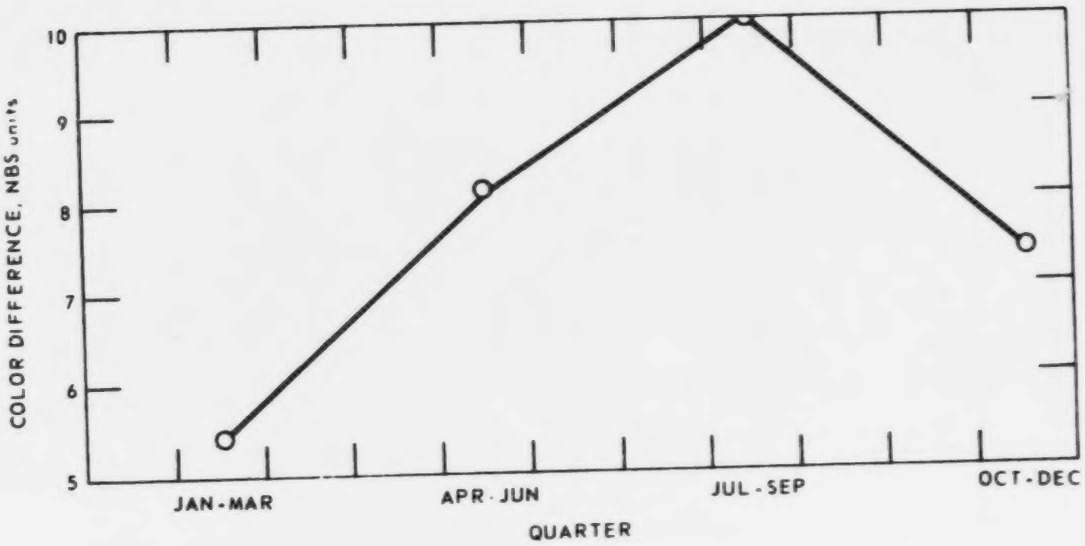


Figure 3-4. Distribution of fabric No. 8 results by quarter, 1968.

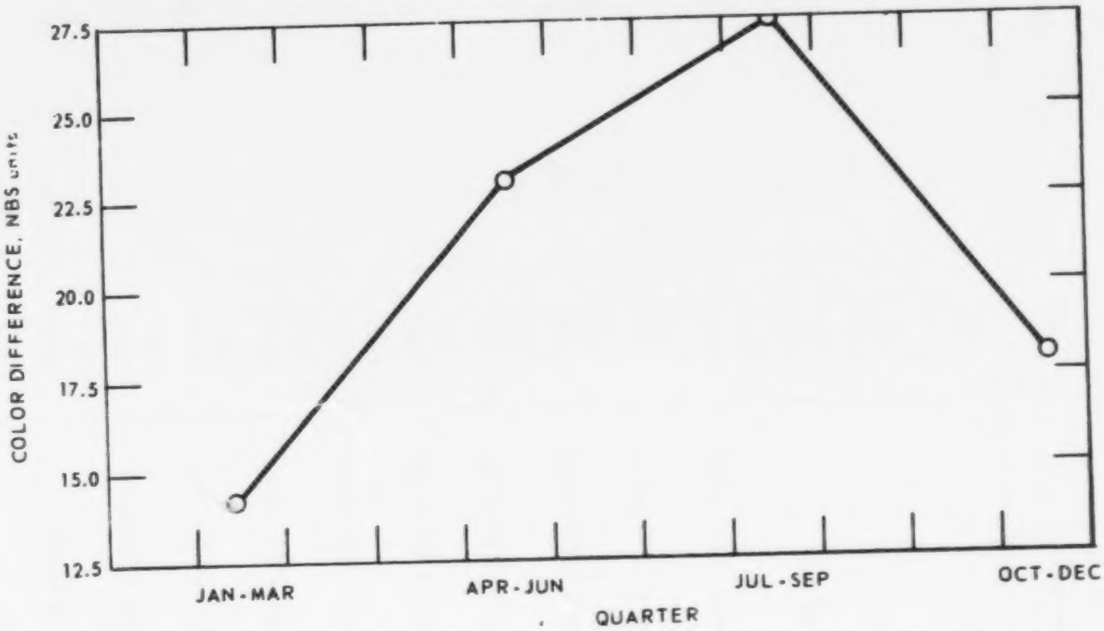


Figure 3-5. Distribution of fabric No. 9 results by quarter, 1968.

Table 3–7. EFFECTS NETWORK ANNUAL AVERAGES CUMULATIVE FREQUENCY DISTRIBUTION 1967–1968

Component	Year	No. of samples	Minimum	% of values less than stated value					Maximum
				10	25	50	75	90	
Annual zinc (μ/yr)	1967	124	0.2	0.4	0.8	1.4	2.9	4.4	17.0
	1968	216	0.1	0.6	1.0	1.9	3.5	4.9	15.4
Annual steel (μ/yr)	1967	129	0	4	18	31	44	58	107
	1968	204	0	6	16	29	42	53	88
Quarterly steel (μ/yr)	1967	152	1	4	18	44	67	84	144
	1968	250	1	4	13	38	69	89	142
Fabric No. 1 (Color difference, NBS units)	1967	152	10.1	12.5	14.2	15.5	17.2	18.6	25.4
	1968	240	11.5	16.7	17.7	18.9	20.6	21.9	26.6
Fabric No. 2 (Color difference, NBS units)	1967	151	1.0	1.1	1.7	2.8	3.8	5.5	14.4
	1968	...	....	....	....	....	.....	.....	.....
Fabric No. 3 (Color difference, NBS units)	1967	152	9.3	13.4	16.0	19.7	25.8	33.0	50.7
	1968	238	9.0	16.8	20.0	24.1	31.3	40.2	57.6
Fabric No. 4 (Color difference, NBS units)	1967	141	10.4	13.4	15.0	17.9	21.1	24.2	28.7
	1968	...	....	....	....	....	.....	.....	.....
Fabric No. 5 (Color difference, NBS units)	1967	...	....	....	....	....	.....	.....	.....
	1968	237	4.0	7.9	9.3	10.7	12.3	13.7	17.8
Fabric No. 6 (Color difference, NBS units)	1967	...	....	....	....	....	.....	.....	.....
	1968	238	3.4	5.8	6.9	8.4	10.4	12.0	19.6
Fabric No. 7 (Color difference, NBS units)	1967	...	....	....	....	....	.....	.....	.....
	1968	239	3.3	5.3	6.7	8.1	10.2	12.2	18.2
Fabric No. 8 (Color difference, NBS units)	1967	...	....	....	....	....	.....	.....	.....
	1968	239	4.4	5.8	6.6	7.8	9.4	11.8	17.9
Fabric No. 9 (Color difference, NBS units)	1967	...	....	....	....	....	.....	.....	.....
	1968	244	7.7	15.9	18.2	21.1	23.9	26.1	37.4
Silver tarnish (% decrease, reflectance)	1967	145	4	31	42	58	71	79	91
	1968	254	5	26	38	55	70	81	93
Sulfation candle (mg SO_3/100 cm^2-day)	1967	145	0	0	0.1	0.4	1.3	1.9	5.2
	1968	253	0	0	0.1	0.4	1.1	1.7	4.7
Sulfation plate[a] (μg SO_2/cm^2-day)	1967	...	....	....	....	....	.....	.....	.....
	1968	243	0	0	0.1	0.4	1.0	1.6	5.0

Dustfall (g/m^2-mo)	1967	140	0.1	2.0	3.1	4.9	7.8	12.0	22.2
	1968	248	0.2	2.2	3.1	4.6	6.9	9.6	29.0
Monthly nylon (total No. of defects)	1967	145	0	0	0	0	0.2	2.6	41.8
	1968	252	0	0	0	0	0.3	1.4	34.2
Quarterly nylon (total No. of defects)	1967	...	...	...	...	...	...	...	...
	1968	253	0	0	0	0.2	1.4	4.5	99.0
Rubber deterioration (average crack depth, µ)	1967	...	...	...	...	...	...	...	...
	1968	233	0	41	56	75	100	128	316
Sticky paper (particles/mm^2)	1967	...	...	...	...	...	...	...	...
	1968	231	2	11	21	30	42	54	80

---

[a] Sulfation plate measurements are reported in µg SO_2/cm^2-day. These values have been converted to mg SO_3/100 cm^2-day for comparison with sulfation candle values (mg SO_3/100 cm^2-day = .125 µg SO_2/cm^2-day).

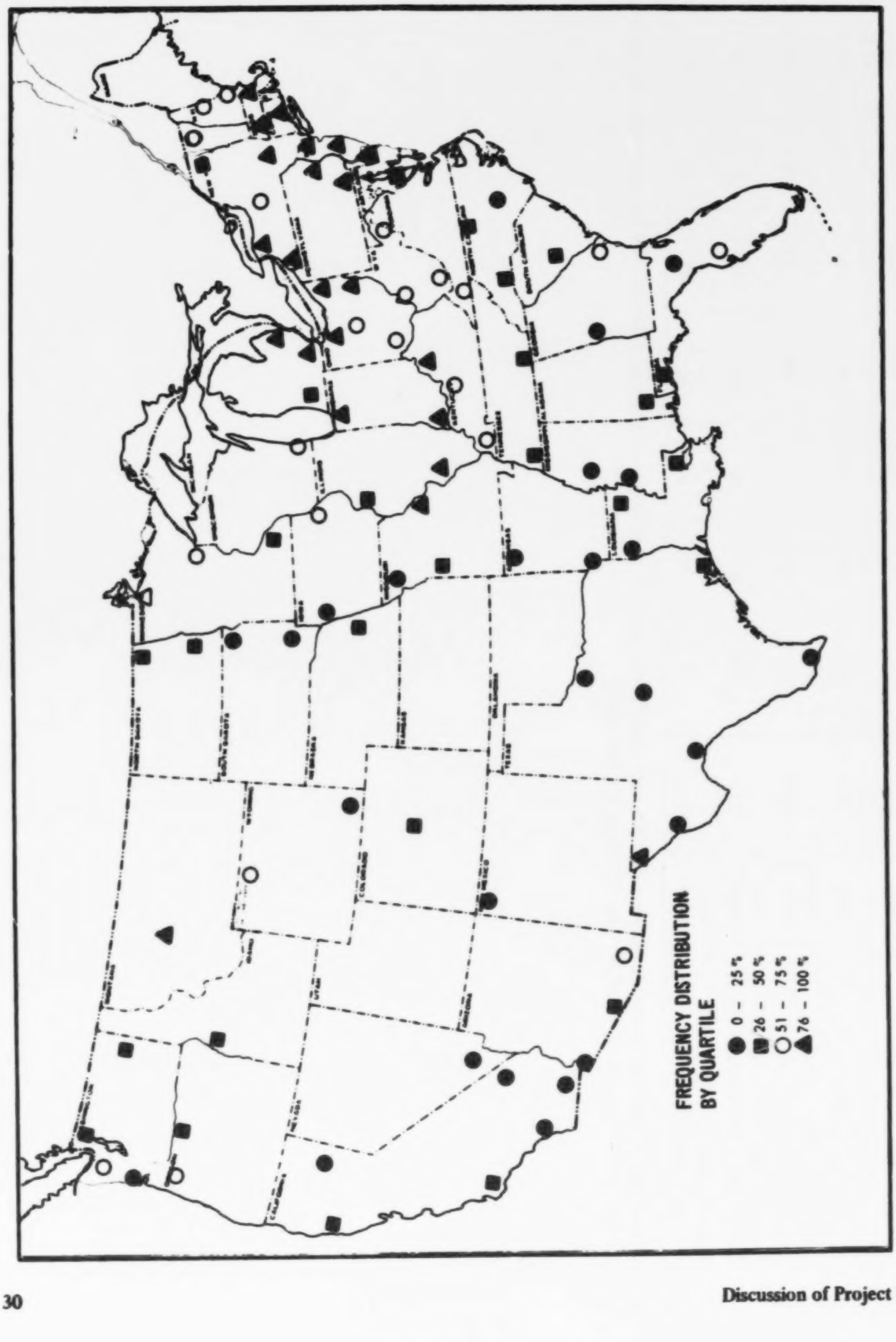

FREQUENCY DISTRIBUTION BY QUARTILE
● 0 - 25%
■ 26 - 50%
○ 51 - 75%
▲ 76 - 100%

Figure 3-6. Geographic distribution of lead candle sulfation measurements, 1968.

were then tabulated and the cumulative frequency distributions derived (Table 3–7). Results in this table are not directly comparable with Table 3–1, in which the frequency distributions were derived from individual measurements. Table 3–7 can be used as a yardstick in describing the severity of a pollution problem for an individual station by relating its annual average to that for all stations.

Geographic distribution of the 1968 annual sulfation results is presented in Figure 3–6. This distribution was obtained by determining the position of an individual station's annual average on the frequency distribution of annual averages for all stations (Table 3–7).

Stations within an area were grouped together and plotted as one value.

Highest levels were generally found in the Northeastern and North-Central sections of the United States. These areas have relatively high population densities and are generally more industrialized than other sections; coal is a fairly common source of heat in both areas. Although other sections of the United States show an occasional area with high levels, they do not have the same consistent, overall pattern of high sulfation concentrations.

A strong relationship between sulfation levels and presence of sulfur dioxide has been shown. This relationship will be discussed in detail in the statistical evaluation section of this report. From these latter data, it becomes apparent that the Northeastern and North-Central sections of the United States have potentially greater overall sulfur dioxide problems than do other areas.

3.4 SUMMARY

Frequency distributions of data for all components of the surveillance network revealed the following: Results for 1967 and 1968 were not significantly different. Levels at the background stations were significantly lower for components other than those related to an oxidant or ozone effect. Seasonal effects were noted for rubber panels, for dyed fabrics No. 4, No. 5, No. 8, and No. 9, for the sulfation candle and plate, and for dustfall buckets and sticky paper. Frequency distributions of annual averages permitted comparisons of stations and/or areas as to relative severity of pollution problems.

BLANK PAGE

4. AREA EVALUATION

Norman Huey and George Jutze

A primary objective of the Interstate Surveillance Project is to provide data on the overall impact of pollution on an area as well as the type of pollutant that appears to be a major problem within the area.

4.1 FREQUENCY DISTRIBUTION OF AREAS

Appendix C presents a tabulation of data from the 14 indicators that, in the authors' judgment, yielded data relative to specific pollutants. All reported measurements were accumulated for the year 1968, and each component's data were ordered into quartiles of the annual frequency distribution. These quartiles were labeled from 1 to 3, starting with the initial quartile, 0 to 25 percent, and going to the third quartile, 51 to 75 percent. The fourth, or upper, quartile was split into two groups: data in the 76 to 90 percent range were labeled 4, while the top decile, 91 to 100 percent, of all data was designated as 5. Thus, the order of each digit represents the specific quartile, or maximum decile, range in which that site may be found in the frequency distribution of annual data from all reporting sites as follows:

1, for the first quartile, 0 to 25%.
2, for the second quartile, 26 to 50%.
3, for the third quartile, 51 to 75%.
4, for the fourth quartile: up to the maximum decile, 76 to 90%.
5, for the fourth quartile: within the maximum decile, 91 to 100%.

In other words, each number label, 1 to 5, represents the specific quartile or decile of the frequency distribution and determines the location of the annual average for a specific station as it relates to the distribution of annual averages for all stations.

4.1.1 Assigning Pollutant Code Numbers (PCN's)

To further summarize the data, the component rankings, 1 through 5, were grouped according to six major pollutant types, and each station was assigned a six-digit pollutant code number (PCN). When more than one component was used to measure a single pollutant (for example, dustfall, sticky paper, and fabric No. 6, were used to measure particulates), the component rankings were averaged to obtain a single PCN digit for that pollutant. Thus, each station was assigned a six-digit PCN to relate the components to the six major pollutants, as illustrated in Table 4–1.

Table 4–1. COMPONENT-POLLUTANT RELATIONSHIP SHOWN BY POLLUTANT CODE NUMBER

PCN digit	Pollutant indicated	Component
First digit	Particulates	Dustfall bucket Sticky paper Fabrics No. 2[a] and No. 6
Second digit	Sulfur oxides	Lead candle and plate Steel panel, 3 mo; 1 yr Zinc panel
Third digit	Hydrogen sulfide	Silver plate
Fourth digit	Acid aerosols	Nylon panel, 1 mo; 3 mo
Fifth digit	Oxides of nitrogen	Fabric No. 3
Sixth digit	Oxidation potential	Rubber panel Fabrics No. 4[a] and No. 5

[a] Used in 1967 but not in 1968.

The PCN's listed in Table 4–2 are for the one station within each area that has the greatest number of large digits for the six pollutant types. For example, Station No. 52, Chicago, has a PCN of 555442, which indicates that in 1968 the data from this site ranked in the upper decile for particulates, sulfur oxides, and hydrogen sulfide; in the fourth quartile for acid aerosols and nitrogen oxides; and in the second quartile for the oxidation potential.

Table 4–2. MAXIMUM POLLUTANT CODE NUMBER TABULATION, BY AREA

Area name	Station number[a]	Pollutant code number	
		1967	1968
Albany, New York	30	442541	343441
Anchorage, Alaska	246		211231
Ann Arbor, Michigan	224		222222
Augusta, Georgia	131	123224	224322
Austin, Texas	120	113214	113244
Bastrop, Louisiana	208		425232
Beaumont, Texas	122	235234	234235
Bellingham, Washington	77	222212	222221
Binghamton, New York	25	331242	232232
Blacksburg, Virginia	195		222225
Block Island, Rhode Island	189		232235
Bluefield, Virginia	159		432234
Bogalusa, Louisiana	214		235224
Boston, Massachusetts	192		443541
Boulder City, Nevada	89	211214	211215
Bridgeport, Connecticut	243		443552
Bristol, Tennessee	148	32122–	332233
Broward County, Florida	135	222312	222312
Brownwood, Texas	125	211214	312214
Buffalo, New York	24	555451	555341
Burlington, Vermont	181		132434
Calexico, California	93	41322–	414225
Cannon Mountain, New Hampshire	175		221213
Carville, Louisiana	219		113414
Chapel Hill, North Carolina	237		121324
Charlotte, North Carolina	33	123234	223334
Chattanooga, Tennessee	140	322422	333332
Cheyenne, Wyoming	252		21121–
Chicago, Illinois	52	555432	555442
Cincinnati, Ohio	6	422242	433341
Clarkston, Washington	74	325211	325212
Columbus, Georgia	143	112322	112223
Columbus, Ohio	37	223222	232231
Corvallis, Oregon	69	111212	111312
Custer, South Dakota	244		111414
Davenport, Iowa	59	421221	421222
Del Rio, Texas	115	311214	211213
Denver, Colorado	27	411232	411232
Detroit, Michigan	34	444242	544342
Douglas, Arizona	102	321213	431214
Dubuque, Iowa	227		421212
Dulce, New Mexico	100	111213	111214
Duluth, Minnesota	50	222222	333211
Eagle Pass, Texas	116	31321–	414215
East Helena, Montana	254		441412
Easton, Pennsylvania	14	243432	343432
El Paso, Texas	103	323413	243414
Evansville, Indiana	161		343234

Table 4–2 (continued). MAXIMUM POLLUTANT CODE NUMBER TABULATION, BY AREA

Area name	Station number[a]	Pollutant code number 1967	1968
Fairbanks, Alaska	247		211221
Fall River, Massachusetts	191		442353
Fargo, North Dakota	198		321221
Farmington, New Mexico	99	31221-	221214
Fernandina Beach, Florida	134	145244	245325
Fort Smith, Arkansas	211		111315
Frankfort, Kentucky	106	122224	122224
Frannie, Wyoming	253		2252--
Gainesville, Florida	233		224224
Grand Forks, North Dakota	197		321212
Guaynabo, Puerto Rico	255		4435-4
Hartford, Connecticut	184		442551
Hennepin, Illinois	56	231214	221214
Hilo, Hawaii	242		111212
Honolulu, Hawaii	241		221322
Huntington, West Virginia	66	535422	545331
International Falls, Minnesota	251		545211
Kansas City, Missouri	48	322422	332322
Kenosha, Wisconsin	51	342324	332232
Keyser, West Virginia	152		335222
Laredo, Texas	117	213213	414212
Lawrence, Massachusetts	177		332242
Lebanon, New Hampshire	180		232431
Leesburg, Virginia	114		122424
Longview, Washington	80	233212	234211
Los Angeles, California	239		223255
Louisville, Kentucky	39	432442	443332
Luray, Virginia	172		121213
Madawaska, Maine	193		551--2
McAllen, Texas	118	325224	314224
Memphis, Tennessee	147	32243-	312233
Milbank, South Dakota	245		211211
Mobile, Alabama	146		324323
Montauk Point, New York	144		242245
Natchez, Mississippi	215		114224
Needles, California	91	211214	211314
New Orleans, Louisiana	218		425232
New York, New York	5	544551	444551
Nogales, Arizona	101	311213	311223
Oakland, California	95	222231	222241
Omaha, Nebraska	202		311212
Oneca, Florida	130		122324
Overland Park, Kansas	88	111414	111212
Owensboro, Kentucky	43	432223	343332
Parkersburg, West Virginia	63	234232	234332
Pensacola, Florida	145	323435	233334
Petersburg, New York	29		121314
Philadelphia, Pennsylvania	11	445552	445552
Portland, Oregon	83	123212	133412
Portsmouth, New Hampshire	174		353443
Providence, Rhode Island	190		343452
Rooseveltown, New York	194		234334
St. Joseph, Missouri	204		311212

Table 4–2 (continued). MAXIMUM POLLUTANT CODE NUMBER TABULATION, BY AREA

Area name	Station number[a]	Pollutant code number	
		1967	1968
St. Louis, Missouri	45	445532	455531
San Ysidro, California	94	121235	212235
Sarnia, Ontario, Canada	166		344222
Sault St. Marie, Michigan	223		333222
Savannah, Georgia	132	344434	334233
Seattle, Washington	78	231532	232431
Sherman, Texas	127	111224	311224
Shreveport, Louisiana	212		2124-4
Sioux City, Iowa	201		411212
Sioux Falls, South Dakota	199		311312
South Tahoe, California	97	111212	121214
Spokane, Washington	71	221412	3113-1
Spray, North Carolina	157		122234
Springfield, Massachusetts	182		442552
Steubenville, Ohio	62	445342	555341
Sumpter Township, Michigan	164		232225
Tampa, Florida	68	245424	335234
Texarkana, Texas	129	214224	213324
The Dalles, Oregon	79	121212	211212
Ticonderoga, New York	178		135414
Toledo, Ohio	36	434232	444232
Trenton, New Jersey	18	443541	343343
Vicksburg, Mississippi	217		412222
Volunteer Arsenal, Tennessee	107	343543	333542
Washington, D.C.	7	333451	433352
Westerly, Rhode Island	185		242344
Wichita Falls, Texas	126	211214	111214
Wilmington, Delaware	8	445542	444542
Winona, Minnesota	225		221412
Youngstown, Ohio	38	545242	545241
Yuma, Arizona	92	211214	211215

[a] Station selected is the one exhibiting greatest number of maximum values within its region.

It should be emphasized that the use of a single station to depict all stations in an area has some known limitations, but these limitations are not considered critical since the primary emphasis of the ISP is to detect problems within an area, not to determine "area-wide" problems.

An area is considered to have a problem with a type of pollutant if the PCN has digits of either 4 or 5 (upper quartile). For example, in Table 4–2, Chicago with a PCN of 555442 is considered to have three "severe problems" and two that are "problems."

Table 4–3, based on data in Table 4–2, lists 74 of 144 areas that had at least one pollution problem in 1968. The relative severity of the problems is designated by either an "X" or an "S", which are equivalent to "4" and "5", respectively. The table shows the wide range of pollution problems that can be detected and characterized by the monitoring techniques used in the ISP. The table also provides a first-order estimation of the magnitude of the pollution impact within an area; this estimation helps in the pollution control activities conducted by all levels of regulatory agencies.

4.1.2 Defining Pollutant Problems

The ISP provides information from which action priorities could be established; the surveillance network thus can serve as a "screening" mechanism. Areas with multiple or specific problems, when compared to all other areas surveyed, should rank in or near the maximum quartile, and those with lesser problems, in or near the minimum

Table 4–3. NUMBER AND RELATIVE SEVERITY OF AIR POLLUTION PROBLEMS IN ISP AREAS

Area name	Pollutant severity index (1968 data only)[a]				
	Partic- ulate	SO_x	H_2S	Acid aerosol	NO_x
Albany, New York		X		X	X
Augusta, Georgia			X		
Austin, Texas					X
Bastrop, Louisiana	X		S		
Beaumont, Texas			X		
Bluefield, West Virginia	X				
Bogalusa, Louisiana			S		
Boston, Massachusetts	X	X		S	X
Bridgeport, Connecticut	X	X		S	S
Buffalo, New York	S	S	S		X
Calexico, California	X		X		
Carville, Louisiana				X	
Chicago, Illinois	S	S	S	X	X
Cincinnati, Ohio	X				X
Clarkston, Washington			S		
Custer, South Dakota				X	
Davenport, Iowa	X				
Denver, Colorado	X				
Detroit, Michigan	S	X	X		X
Douglas, Arizona	X				
Dubuque, Iowa	X				
Eagle Pass, Texas	X		X		
East Helena, Montana	X	X		X	
Easton, Pennsylvania		X		X	
El Paso, Texas		X		X	
Evansville, Indiana		X			
Fall River, Massachusetts	X	X			S
Fernandina Beach, Florida		X	S		
Frannie, Wyoming			S		
Gainesville, Florida			X		
Guaynabo, Puerto Rico	X	X		S	
Hartford, Connecticut	X	X		S	S
Huntington, West Virginia	S	X	S		
International Falls, Minnesota	S	X	S		
Keyser, West Virginia			S		
Laredo, Texas	X		X		
Lawrence, Massachusetts					X
Lebanon, New Hampshire				X	
Leesburg, Virginia				X	
Longview, Washington			X		
Los Angeles, California					S
Louisville, Kentucky	X	X			
Madawaska, Maine	S	S			
McAllen, Texas			X		
Mobile, Alabama			X		
Montauk Point, New York					X
Natchez, Mississippi			X		
New Orleans, Louisiana	X		S		
New York, New York	X	X	X	S	S
Owensboro, Kentucky		X			

Table 4–3 (continued). NUMBER AND RELATIVE SEVERITY OF AIR POLLUTION PROBLEMS IN ISP AREAS

Area name	Pollutant severity index (1968 data only)[a]				
	Partic-ulate	SO_x	H_2S	Acid aerosol	NO_x
Parkersburg, West Virginia			X		
Philadelphia, Pennsylvania	S	X	S	X	S
Portland, Oregon				X	
Portsmouth, New Hampshire		S		X	X
Providence, Rhode Island		X		X	S
Rooseveltown, New York			X		
St. Louis, Missouri	X	S	S	S	
Sarnia, Ontario, Canada		X	X		
Savannah, Georgia			X		
Seattle, Washington				X	
Shreveport, Louisiana				X	
Sioux City, Iowa	X				
Springfield, Massachusetts	X	X		S	S
Steubenville, Ohio	S	S	S		X
Tampa, Florida			S		
Toledo, Ohio	X	X	X		
Trenton, New Jersey		X			X
Vicksburg, Mississippi	X				
Volunteer Arsenal, Tennessee				S	X
Washington, D.C.	X				S
Westerly, Rhode Island		X			X
Wilmington, Delaware	X	X	X	S	X
Winona, Minnesota				X	
Youngstown, Ohio	S	X	S		X

[a] S = Results in maximum frequency distribution decile or top 10 percent.
X = Results in maximum frequency distribution quartile or top 25 percent.

quartile. (By the nature of the network design, clear-cut definitions could not be expected for the mid-portion or "gray area" of the data.) It seems reasonable, however, to expect that areas ranking in the top decile or quartile of data measurement would have a more severe problem than areas in the lower half.

In an effort to study this hypothesis, the ISP data were related either to emission density estimates of particulates and sulfur oxides (if this information was available) or to the presence of emission sources in a specific area.* These comparisons are discussed in succeeding subsections.

4.2 EVALUATION OF PARTICULATE PROBLEMS

Among the sources of particulates are fuel combustion, various manufacturing and processing operations (e.g., production of steel, cement, primary metals, pulp and paper, and petroleum products), and open burning and incineration of refuse. Estimates of particulate densities for 62 urban areas (all that were available) were obtained from the Division of Air Quality and Emissions, APCO, to evaluate the network used by the ISP to define particulate problems.

These emission densities are listed in order of magnitude in Tables 4–4 and 4–5. Twenty-two of these areas had emissions of 15 tons per square mile per year or greater. In these 22 areas, the corresponding PCN index pinpointed the particulate problems—one exception was Easton, Pennsylvania. In fact, ISP components also showed the same five areas highest in particulate emissions. Although these comparisons do not prove that selected ISP components measure particulate levels, they lend support to the belief that these components are good indicators of relative levels of particulate pollution.

---

*It must be emphasized that no attempt was made to predict emission density or to quantify specific sources' impacts. An attempt was made to demonstrate the utility of this unsophisticated and easily implemented network to provide basic data that can assist in supporting decisions.

Table 4–4. RELATIONSHIP OF PARTICULATE EMISSION DENSITY TO ISP PARTICULATE PROBLEM SEVERITY INDEX
1968

Particulate emission density, tons/mi^2-yr	Area name	Relative severity index	Particulate emission density, tons/mi^2-yr	Area name	Relative severity index
155	Detroit, Mich.	S	35	Huntington, W.Va.	S
120	Steubenville, Ohio	S	30	Wilmington, Del.	X
115	Youngstown, Ohio	S	30	Toledo, Ohio	X
110	Buffalo, New York	S	30	Denver, Colo.	X
90	Chicago, Illinois	S	25	Boston, Mass.	X
90	Easton, Pa.	—	25	Springfield, Mass.	X
90	Fall River, Mass.	X	25	Washington, D.C.	X
70	Bridgeport, Conn.	X	25	New Orleans, La.	X
65	Louisville, Ky.	X	15	Laredo, Texas	X
50	New York, New York	X	10	Hartford, Conn.	X
45	Philadelphia, Pa.	S	10	Davenport, Iowa	X
40	Cincinnati, Ohio	X	10	Dubuque, Iowa	X
40	St. Louis, Mo.	X	10	Sioux City, Iowa	X

4.3 EVALUATION OF SULFUR OXIDE PROBLEMS

The sulfur oxides that are of concern as atmospheric pollutants are sulfur dioxide, sulfur trioxide, and their acids and acidic salts. When fossil fuels such as coal and petroleum are burned, their sulfur content is converted to sulfur dioxide and, to a lesser degree, sulfur trioxide. Because fossil fuels are burned abundantly to heat buildings and to generate electric power, pollution from the oxides of sulfur is widespread, especially in cities. Petroleum refineries, smelting plants, coke-processing plants, sulfuric acid manufacturing plants, coal refuse banks, and refuse-burning activities are also major sources of sulfurous pollution.

Table 4–6 relates sulfur oxide emission densities to the respective sulfur oxide PCN index for the areas defined, and Table 4–7 presents emission density estimates for other ISP areas. Again the PCN index corresponded well to the emission density estimates; all areas, except two, with a sulfur oxide density of 50 tons per square mile per year or more exhibited an index of "S" or "X." In the case of the two apparent discrepancies, Cincinnati and Beaumont, approximately 70 percent of the sulfur dioxide estimated for Cincinnati was attributed to two large, high-level emission sources at least 25 miles from the nearest sampler, and for Beaumont, the samplers are at least the same distance from the source. Thus, as in the case of the particulate PCN index, the sulfur oxide PCN index is a good indicator of the presence of sulfur oxides.

4.4 EVALUATION OF HYDROGEN SULFIDE PROBLEMS

The known point sources of ambient hydrogen sulfide include paper mills, oil refineries, steel mills, oil and gas wells, and anaerobic lagoons. In kraft paper mills, the recovery furnaces are the largest contributors; in steel mills, the contributors are the associated coking operations. Hydrogen sulfide sources can be relatively easily identified by the presence of their unique odor.

The hydrogen sulfide severity index, unlike the ISP indexes for particulates and sulfur oxides, cannot be compared with hydrogen sulfide emission data or air quality information because neither type of data is available. Accordingly, only the known types of hydrogen sulfide sources within each area in which high indexes were found can be compared with silver-plate data.

Table 4–5. OTHER ISP AREAS FOR WHICH PARTICULATE EMISSION DENSITY ESTIMATES ARE AVAILABLE[a]

Particulate emission density, tons/mi^2-yr	Area name	Particulate emission density, tons/mi^2-yr	Area name
10	Chattanooga, Tennessee	3	Ann Arbor, Michigan
9	Evansville, Indiana	2	Augusta, Georgia
9	Kansas City, Missouri	2	Binghampton, New York
9	Providence, Rhode Island	2	Charlotte, North Carolina
8	Memphis, Tennessee	2	Pensacola, Florida
8	Mobile, Alabama	2	Seattle, Washington
8	Los Angeles, California	1	Portland, Oregon
8	Columbus, Ohio	1	Spokane, Washington
8	Trenton, New Jersey	<1	Columbus, Georgia
7	Kenosha, Wisconsin	<1	Fargo, North Dakota
7	Honolulu, Hawaii	<1	Fort Smith, Arkansas
6	Duluth, Minnesota	<1	Boulder City, Nevada
6	Omaha, Nebraska	<1	San Diego, California
5	Beaumont, Texas	<1	Shreveport, Louisiana
5	Savannah, Georgia	<1	Sioux Falls, South Dakota
4	Lawrence, Massachusetts	<1	Texarkana, Texas
4	El Paso, Texas	<1	Wichita Falls, Texas
3	St. Joseph, Missouri	<1	Austin, Texas

[a] The particulate PCN digit for all of these areas was 3 or less (i.e., there were no values in the upper quartile or top decile.

Table 4–8 lists the areas ranking in the upper quartile according to their annual average silver-tarnishing rate (percent loss of reflectance per month) and their relative severity index. The table also lists the types of point sources known to exist in the areas.

Nearly all areas rated in the upper quartile and/or upper decile contain industries that are known to emit hydrogen sulfide. Frannie, Wyoming, in the upper decile and coded with an "S", is the only area that does not

Table 4–6. RELATIONSHIP OF SULFUR OXIDES EMISSION DENSITY TO ISP SULFUR OXIDES PROBLEM SEVERITY INDEX

SO_x emission density, tons/mi^2-yr	Area name	Relative severity index	SO_x emission density, tons/mi^2-yr	Area name	Relative severity index
475	Fall River, Mass.	X	125	Springfield, Mass.	X
460	Steubenville, Ohio	S	125	Hartford, Conn.	X
440	Bridgeport, Conn.	X	120	El Paso, Texas	X
400	Chicago, Illinois	S	110	Easton, Pa.	X
360	New York, New York	X	110	Buffalo, New York	S
340	Louisville, Kentucky	X	110	Wilmington, Dela.	X
270	Boston, Mass.	X	80	Albany, New York	X
245	Detroit, Michigan	X	75	Sarnia, Ontario	X
210	St. Louis, Missouri	S	70	Trenton, New Jersey	X
200	Philadelphia, Pa.	X	65	Evansville, Indiana	X
150	Cincinnati, Ohio	–	65	Owensboro, Kentucky	X
145	Beaumont, Texas	–	55	Providence, R.I.	X
140	Toledo, Ohio	X	50	Huntington, W. Va.	X
135	Youngstown, Ohio	X			

Table 4–7. OTHER ISP AREAS FOR WHICH SULFUR OXIDES EMISSION DENSITY ESTIMATES ARE AVAILABLE[a]

SO_x emission density tons/mi^2-yr	Area name	SO_x emission density tons/mi^2-yr	Area name
45	Augusta, Georgia	10	Denver, Colorado
45	Chattanooga, Tennessee	<10	Charlotte, North Carolina
45	Savannah, Georgia	<10	Columbus, Georgia
45	Washington, D.C.	<10	Duluth, Minnesota
40	Memphis, Tennessee	<10	Fargo, North Dakota
40	Columbus, Ohio	<10	Forth Smith, Arkansas
30	Kansas City, Missouri	<10	Laredo, Texas
30	Kenosha, Wisconsin	<10	Boulder City, Nevada
30	Omaha, Nebraska	<10	Portland, Oregon
30	Los Angeles, California	<10	San Ysidro, California
25	Dubuque, Iowa	<10	Shreveport, Louisiana
25	Mobile, Alabama	<10	Sioux City, Iowa
20	Lawrence, Massachusetts	<10	Sioux Falls, South Dakota
15	Pensacola, Florida	<10	Spokane, Washington
15	St. Joseph, Missouri	<10	Texarkana, Texas
15	Seattle, Washington	<10	Wichita Falls, Texas
10	Binghampton, New York	<10	Austin, Texas
10	Ann Arbor, Michigan	<10	Honolulu, Hawaii

[a]The sulfur dioxide PCN digit for all of these areas was 3 or less (i.e., there were no values in the upper quartile or top decile).

contain either paper mills, steel mills, or oil refineries. This location was sampled because of the known hydrogen sulfide pollution problem associated with the nearby sour-gas oil fields.

Three areas labeled "X" are not explained by the three types of industry in Table 4–8. The Calexico, California, area is thought to be influenced by hydrogen sulfide emissions from a sewage treatment operation across the Mexican border. The Gainesville, Florida, area is influenced by a large water cooling tower 200 yards away, which aerates ground water of high hydrogen sulfide content. The Parkersburg, West Virginia, area–like Gainesville–appeared to be an oddity, but it was learned from local people that this area has an odor problem caused by various sulfur compounds, including hydrogen sulfide, emitted by a small nearby chicken-processing operation.

Although the comparisons in this subsection are not based on emission density data, it is felt that the detailed sources of hydrogen sulfide listed in Table 4–8 provide sufficient information to be able to state with reasonable confidence that the silver plate is a good indicator of the presence of hydrogen sulfide. This is not to imply that levels of hydrogen sulfide can be estimated from these data; rather, the data can be used to determine hydrogen sulfide presence.

4.5 EVALUATION OF ACID AEROSOL PROBLEMS

The only available measurements of acid aerosols at present are those made using nylon panels. Acid aerosols in large quantities are known to be emitted at times from sulfuric acid plants; aerosols are also emitted from large combustion sources, especially oil-fired sources, but to a somewhat lesser degree.

Nylon panels detect only excessive conditions that generally are associated with strong local point sources. Table 4–9 lists the ISP areas that exhibited severe acid aerosol problems. With the limited knowledge available, it is not possible to explain why, in terms of industry type, each area is in the upper decile. Credibility of the measurements, however, can be obtained from limited knowledge about some of the areas.

For example, St. Louis is known to have a severe acid aerosol problem; reportedly, an acid plant in East St. Louis occasionally emits large quantities that cause severe damage to women's nylon hose. New York is

Table 4–8. RELATIONSHIP OF SOURCES TO ISP HYDROGEN SULFIDE PROBLEM SEVERITY INDEX

Suspected sources			Area name	Relative severity index	Tarnishing rate
Paper mill	Steel mill	Oil refinery			
	•	•	Chicago, Illinois	S	90
	•		Huntington, West Virginia	S	90
•			Fernandina Beach, Florida	S	89
•			Keyser, West Virginia	S	89
	•	•	Buffalo, New York	S	88
•			Clarkston, Washington	S	87
	•	•	St. Louis, Missouri	S	87
	•		Steubenville, Ohio	S	86
•			International Falls, Minnesota	S	86
•		•	New Orleans, Louisiana	S	85
	•		Tampa, Florida	S	84
			Frannie, Wyoming	S	82
•			Bogalusa, Louisiana	S	82
•			Ticonderoga, New York	S	82
	•		Youngstown, Ohio	S	81
	•	•	Philadelphia, Pennsylvania	S	81
		•	New York, New York	X	80
•			Longview, Washington	X	78
		•	McAllen, Texas	X	78
			Gainesville, Florida	X	78
•			Bastrop, Louisiana	X	77
	•	•	Beaumont, Texas	X	77
•			Natchez, Mississippi	X	76
	•		Eagle Pass, Texas	X	75
			Parkersburg, West Virginia	X	74
•		•	Savannah, Georgia	X	74
		•	Wilmington, Delaware	X	74
•			Augusta, Georgia	X	73
	•	•	Detroit, Michigan	X	72
		•	Toledo, Ohio	X	71
•			Mobile, Alabama	X	71
		•	Sarnia, Ontario, Canada	X	70
			Calexico, California	X	70

Table 4–9. RELATIONSHIP OF SOURCES TO ISP ACID AEROSOL PROBLEM SEVERITY INDEX

Suspected source	Area name	Severity index
Acid production	Wilmington	S
Undefined	Bridgeport	S
Acid production	St. Louis	S
Acid production/TNT	Volunteer Arsenal	S
Undefined	Springfield	S
Acid production	Boston	S
Undefined	Hartford	S
Acid production	New York	S
Undefined	Guaynabo	S

influenced by a large, sporadically uncontrolled acid plant near Elizabeth, New Jersey; the nylon deterioration rate averaged 12 and 30 defects, respectively, for 1967 and 1968, and high-volume samples from this area, analyzed for total acid and for sulfate content, revealed high results. The Volunteer Arsenal area, which is rated in the top decile in Table 4–9, contained four stations. Values for these four stations are shown in Table 4–10, all of these values fall in the upper decile. These excessive deterioration rates indicate the existence of a severe problem due to a TNT production plant known to emit acid aerosols; it has been reported that teachers in adjacent schools cannot wear nylon hose because the aerosol causes excessive nylon damage.

Table 4–10. NYLON DETERIORATION IN VOLUNTEER ARSENAL AREA

Station number	Number of fiber breaks/period	
	30 days	90 days
107	8	24
108	28	79
109	34	99
110	6	21

4.6 EVALUATION OF NITROGEN OXIDE PROBLEMS

Oxides of nitrogen are emitted from many man-made sources such as automobiles, industrial and domestic combustion equipment, electric arc processes, and chemical reactions. In Los Angeles it is estimated that 50 to 60 percent of the emissions come from the automobile; half of the remaining percentage is from point-source power plants; the remainder is from the small-to-medium area sources such as domestic and commercial gas appliances, metallurgical furnaces, nonmetallurgical kilns, stationary internal combustion engines, chemical processes, steel furnaces, glass furnaces, and incinerators.

Accordingly, the highest levels of nitrogen oxides are expected in large metropolitan areas, especially those with poor ventilation, near specific point sources.

Table 4–11 lists all ISP areas with an "S" or "X" severity index for fabric No. 3. All of the upper decile areas, coded S, are either high automobile density areas or extremely well-trafficked corridors between major urban areas. Eleven New England areas are found in the upper quartile; this large portion might be attributable to the combustion of fuel oil for the extended heating season.

4.7 EVALUATION OF OXIDANT POTENTIAL PROBLEMS

The oxidizing substances in the atmosphere have three possible origins. They may occur naturally; they may result from man-made emissions; or they may be formed by chemical interaction. Ozone occurs naturally in amounts from 0.01 to 0.05 ppm at sea level. The concentration increases with altitude. In the outer atmospheric layers, ultraviolet radiation reacts continuously with oxygen to form natural ozone. At the earth's surface, natural ozone is formed by ultraviolet action on the terpenes of the pine forests.

Ozone and other oxidants represent a significant link in the smog-forming reactions characteristic of the Southwestern United States. When strong sunlight falls on air containing hydrocarbons and nitrogen dioxide, both usually from automobiles, ozone and other photochemical oxidants are formed. In Los Angeles, values up to 1 ppm of oxidant have been measured during smog conditions.

Because the formation of photochemical oxidants depends on the interaction of hydrocarbon emissions and sunlight, diurnal and seasonal variations in pollutant levels are expected. Also, because greater irradiation of airborne pollutants occurs in the areas in lower latitudes, and because the Southern areas of the United States–particularly those in the Southwest–have less cloudiness and more sunlight than the Northern areas, the Southern areas normally have a longer potential oxidant season.

Annual averages reflect the summation of the length of the season and the severity of the daily occurrences. Because of this averaging affect, and because of the natural ozone background and the short duration of high concentrations, high annual averages of ozone and other oxidants will not be indications of photochemical

Table 4–11. RELATIONSHIP OF SOURCES TO ISP NITROGEN OXIDES PROBLEM SEVERITY INDEX

Suspected source		Area name	Severity index
Autos	Point source		
•	Miscellaneous	Los Angeles	S
•	Miscellaneous	New York	S
•	Power/metallurgy	Providence	S
•	Power/metallurgy	Hartford; Washington, D.C.	S
•	Metallurgy	Springfield	S
•	Miscellanecus	Fall River; Philadelphia; Bridgeport	S
•	Miscellaneous	Boston	X
–	Metallurgy	Steubenville	X
•	Metallurgy	Buffalo	X
–	Metallurgy	Youngstown	X
–	Chemical	Wilmington	X
–	TNT production	Volunteer Arsenal	X
•	Miscellaneous	Detroit; Westerly; Albany; Cincinnati	X
•	Metallurgy	Trenton; Montauk Point	X
–	Power	Portsmouth; Austin	X
•	Miscellaneous	Chicago	X
•	Metallurgy	Lawrence	X

problems, but will be indications of an area's natural potential for ozone and photochemical oxidants. Since ozone problems are usually of short duration and infrequent, long-term averages will not necessarily reflect this fact. Thus, to determine if there is a problem from ozone, the individual weekly, daily, or hourly values must be considered.

Table 4–12 lists the areas with the greatest potential for the production of photochemical ozone and/or other oxidants. The tabulation indicates that this potential has been realized in the reported occurrence of photochemical smog in many of these areas.

Table 4–12. OXIDANT-POTENTIAL AREAS

Area name	Severity index	Area name	Severity index
San Ysidro	S	Dulce	X
Montauk Point	S	Yuma	X
Boulder City	S	Kintnersville	X
Needles	S	Chapel Hill	X
Los Angeles	S	Spray	X
Block Island	S	Fall River	X
Blacksburg	S	Carville	X
Sumpter Township	S	Gainesville	X
Beaumont	S	Detroit	X
Fernandina Beach	S	Owensboro	X
Calexico	S	Oneca	X
Natchez	S	Westerly	X
Fort Smith	S	Sherman	X
		Shreveport	X
El Paso	X	Wichita Falls	X
Farmington	X	Brownsville	X
McAllen	X	Burlington	X

4.8 SUMMARY

A relative severity index (PCN) for five major pollutants–particulates, sulfur dioxide, hydrogen sulfide, acid aerosols, and nitrogen oxides–and for an oxidation potential was determined for each of the 144 areas. Areas with a severity index of S (severe) or X (moderately severe) were further analyzed by category of estimated emission densities of particulates and sulfur oxides, and from known sources of pollution for the other four major types.

All areas with particulate emission densities of at least 15 tons per square mile per year had a severity index of either S or X. Other areas with indexes of S or X lacked data on particulate emission densities, but are known to have sources of high particulate emissions.

Similarly, areas with sulfur oxide emission densities of 50 tons per square mile per year, except for Cincinnati and Beaumont, had a severity index of either S or X. Most other areas with an index of S or X, for which sulfur oxide emission densities were not available, are known to have major point sources.

No direct estimate of hydrogen sulfide emission densities were available but, based on prior knowledge of the areas, it was determined that most of these areas with an index of S or X had known sources of hydrogen sulfide, such as paper mills, steel mills, or oil refineries.

Detailed information was not available for emissions of nitrogen oxides and acid aerosols; however, many of the areas with S or X, for either of the two categories, were known to have potential emission sources of these two pollutants.

Areas that were relatively unpolluted from the standpoint of particulates, sulfur oxides, nitrogen oxides, hydrogen sulfide, and acid aerosols showed a rather high oxidation potential.

BLANK PAGE

5. STATISTICAL EVALUATION OF DATA

William Cox and Charles Zimmer

To demonstrate the validity and feasibility of the "effects package" as a monitoring and intelligence-gathering tool, it is necessary to study the following factors:

1. Interrelationships between components.
2. The effects of meteorological conditions.
3. Relationships between components and air quality data.

Data from the ISP network and air quality measurements from the Continuous Air Monitoring Program (CAMP), the National Air Sampling Network (NASN), and Environmental Science Services Administration (ESSA) meteorological weather stations were statistically analyzed. The results are presented and discussed in this section.

5.1 CORRELATIONS BETWEEN COMPONENTS

The data base for the statistical analysis consisted of a collation of annual averages for each component. To compute annual averages from these quarterly and monthly reports, it became necessary to obtain data over at least 6 months to establish valid annual averages. Thus, only those stations with valid annual averages for all components were included in the data base. As a result, the data base contained information from 109 stations for 1967 and from 158 stations for 1968. Matrices of correlation coefficients are presented in Tables 5–1 and 5–2.

As previously noted, the network was expanded in 1968 when fabrics No. 5 and No. 6 were used in place of fabrics No. 4 and No. 2, and fabrics No. 7, No. 8, and No. 9 and the sulfation plates were added.

Correlations among the components were generally positive. This suggests that highly polluted areas tend to be contaminated by most types of pollutants. The exceptions were in the data collected on fabrics No. 4 and No. 5 and on the rubber panels; these data were negatively correlated with every other component.

Components that were designed to measure particular pollutants were generally more strongly related to one another than with components of other groups. For example, dustfall buckets, fabric No. 2 (soiling), and sticky paper were all thought to measure particulates and, hence, should correlate well. Inspection of the 1967 correlation matrix showed this to be the case: sticky paper versus dustfall were correlated at 0.69; sticky paper versus fabric No. 2 at 0.63; and dustfall versus fabric No. 2 at 0.62.

Similarly, the steel panel and sulfation candle rates should relate to one another because of the tendency of sulfur oxides to accelerate the rate of metal corrosion. As expected, quarterly steel corrosion was correlated in 1967 at 0.72, and in 1968 at 0.74 with lead candle sulfation rates.

High correlations were observed in 1968 between 1- and 3-month nylon deterioration, 0.99, and between sulfation plate and sulfation candle rates, 0.99. Apparently, data from pollutant collections on one nylon component and on one sulfation component would be adequate to describe these types of effects.

Discussions of additional trends follow the discussion of potential meteorological effects.

5.2 CORRELATIONS OF COMPONENTS AND METEOROLOGICAL PARAMETERS

Because of the long-term (monthly, quarterly, yearly) nature of the effects components, it was not possible to identify completely how meteorological parameters might effect these measurements. Gross effects of meteorology, however, were determined from annual averages for components and from annual averages of windspeed, relative humidity, degree days, temperature, and precipitation measured at the Weather Bureau Stations nearest the ISP stations.

5.2.1 Relative Humidity

In general, correlations between components and meteorological parameters (cf. Tables 5–1 and 5–2) were substantially lower than correlations between components. A few of these correlations, however, warrant further comment. For example, relative humidity was correlated postively with annual steel corrosion (0.27 and 0.62) for both years; the correlation was expected because steel corrosion is known to be accentuated in moist atmospheres, especially in the presence of sulfur dioxides.[18]

The only fabric that displayed relatively high correlations with relative humidity were the nonspecific fabrics No. 1 and No. 9. The 1968 correlation matrix shows correlations of fabric No. 1 (0.45) and fabric No. 9 (0.52) with relative humidity; these two fabrics also correlated better with each other (0.58) than with any other

Table 5–1. EFFECTS CORRELATION MATRIX
1967

AG T = Silver plate
AN S = Annual steel corrosion
D D = Degree days
DUST = Dustfall
FA 1 = Fabric No. 1
FA 2 = Fabric No. 2
FA 3 = Fabric No. 3
FA 4 = Fabric No. 4
NY 1 = Nylon, monthly

PB C = Lead candle
PPCT = Precipitation
QS = Quarterly steel corrosion
RC = Rubber cracking
RH = Relative humidity
SP = Sticky paper
TEMP = Temperature
WS = Windspeed
ZINC = Annual zinc corrosion

	ZINC	AN S	Q S	FA 1	FA 2	FA 3	FA 4	AG T	PB C	DUST	NY 1	R C	S P	TEMP	D D	PPCT	W S
AN S	0.42																
Q S	0.40	0.94															
FA 1	0.21	0.54	0.46														
FA 2	0.30	0.31	0.38	0.27													
FA 3	0.38	0.62	0.66	0.29	0.53												
FA 4	-0.05	0.16	0.03	0.34	-0.42	-0.09											
AG T	0.20	0.66	0.68	0.48	0.30	0.55	0.13										
PB C	0.44	0.63	0.72	0.23	0.66	0.77	-0.32	0.53									
DUST	0.33	0.42	0.49	0.23	0.62	0.57	-0.36	0.45	0.67								
NY 1	0.04	0.13	0.07	0.19	0.00	0.10	0.06	0.05	0.08	0.05							
R C	-0.27	-0.43	-0.45	-0.23	-0.40	-0.44	0.40	-0.34	-0.46	-0.45	-0.12						
S P	0.17	0.11	0.24	-0.01	0.63	0.37	-0.55	0.25	0.58	0.69	-0.12	-0.17					
TEMP	-0.22	-0.33	-0.29	-0.10	-0.44	-0.29	0.42	0.03	-0.37	-0.32	-0.01	0.46	-0.17				
D D	0.25	0.32	0.30	0.08	0.48	0.30	-0.44	-0.01	0.41	0.37	-0.02	-0.45	0.22	-0.97			
PPCT	0.31	0.51	0.47	0.55	0.08	0.35	0.40	0.44	0.21	0.16	0.17	-0.40	-0.22	-0.01	0.00		
W S	0.31	0.20	0.26	0.05	0.41	0.30	-0.10	0.08	0.39	0.26	-0.25	-0.17	0.34	-0.28	0.37	0.13	
R H	0.25	0.62	0.53	0.61	0.14	0.30	0.25	0.46	0.22	0.21	0.14	-0.54	-0.26	-0.28	0.23	0.78	0.03
	ZINC	AN S	Q S	FA 1	FA 2	FA 3	FA 4	AG T	PB C	DUST	NY 1	R C	S P	TEMP	D D	PPCT	W S

Table 5–2. EFFECTS CORRELATION MATRIX

1968

	ZINC	AN S	Q S	FA 1	FA 3	FA 5	FA 6	FA 7	FA 8	FA 9	AG T	PB C	SULF	DUST	NY 1	NY 3	R C	S P	TEMP	D D	PPCT	WS
AN S	0.43																					
Q S	0.43	0.93																				
FA 1	0.26	0.41	0.36																			
FA 3	0.42	0.60	0.64	0.24																		
FA 5	−0.25	−0.23	−0.30	−0.11	−0.32																	
FA 6	0.30	0.43	0.49	0.40	0.57	−0.47																
FA 7	0.17	0.27	0.33	0.33	0.36	−0.45	0.68															
FA 8	0.23	0.35	0.27	0.22	0.38	0.25	0.10	0.03														
FA 9	0.11	0.38	0.36	0.58	0.51	0.03	0.35	0.21	0.36													
AG T	0.30	0.61	0.63	0.44	0.53	−0.21	0.42	0.28	0.10	0.49												
PB C	0.51	0.67	0.74	0.28	0.67	−0.47	0.68	0.49	0.12	0.24	0.56											
SULF	0.51	0.64	0.71	0.28	0.64	−0.49	0.68	0.51	0.11	0.21	0.55	0.99										
DUST	0.30	0.37	0.46	0.27	0.40	−0.56	0.46	0.58	−0.04	0.19	0.43	0.51	0.52									
NY 1	0.35	0.16	0.17	0.06	0.27	−0.13	−0.02	−0.04	0.16	0.13	0.09	0.17	0.16	0.10								
NY 3	0.33	0.18	0.19	0.08	0.28	−0.12	−0.01	−0.02	0.20	0.14	0.10	0.18	0.17	0.10	0.99							
R C	−0.10	−0.35	−0.33	−0.21	−0.22	0.59	−0.25	−0.23	0.21	−0.13	−0.20	−0.29	−0.28	−0.40	−0.16	−0.17						
S P	0.30	0.26	0.40	0.22	0.43	−0.58	0.64	0.62	−0.06	0.13	0.33	0.64	0.65	0.69	0.00	0.00	−0.19					
TEMP	−0.14	−0.39	−0.33	−0.05	−0.18	0.29	−0.33	−0.30	−0.01	0.22	0.01	−0.32	−0.31	−0.22	−0.02	−0.02	0.42	−0.14				
D D	0.13	0.38	0.33	0.04	0.16	−0.28	0.32	0.33	0.01	−0.21	−0.01	0.32	0.31	0.24	0.02	0.02	−0.44	0.16	−0.98			
PPCT	−0.07	0.23	0.22	0.25	0.08	−0.06	0.03	−0.09	0.00	0.40	0.28	0.01	0.01	0.00	0.00	0.02	−0.42	−0.23	0.01	0.00		
W S	0.05	0.20	0.25	−0.04	0.22	−0.17	0.27	0.20	0.00	0.01	−0.08	0.33	0.32	0.10	−0.06	−0.06	−0.18	0.30	−0.34	0.38	0.00	
R H	−0.11	0.27	0.18	0.45	0.10	−0.13	0.08	0.08	0.04	0.52	0.30	−0.02	−0.02	0.09	0.02	0.03	−0.46	−0.20	−0.15	0.14	0.69	−0.02

AG T = Silver plate
AN S = Annual steel corrosion
DD = Degree days
DUST = Dustfall
FA 1 = Fabric No. 1
FA 3 = Fabric No. 3
FA 5 = Fabric No. 5
FA 6 = Fabric No. 6
FA 7 = Fabric No. 7
FA 8 = Fabric No. 8
FA 9 = Fabric No. 9
NY 1 = Nylon, monthly
NY 3 = Nylon, quarterly
PB C = Lead candle
PPCT = Precipitation
QS = Quarterly steel corrosion
RC = Rubber cracking
RH = Relative humidity
SP = Sticky paper
SULF = Sulfation plate
TEMP = Temperature
WS = Windspeed
ZINC = Annual zinc corrosion

components. These facts possibly suggest a mutual response to humidity and contaminants that was neither monitored nor suspected.

The negative correlation of temperature with most components probably reflects the combined effects of northern industrialization and winter heating requirements. Only rubber panels and fabric No. 4 were positively correlated with temperature.

Because the interactions between air contaminants and meteorology parameters are complex, multiple regression was used as a technique for estimating and separating the meteorological effects on certain components. This technique suggested several statistical models for explaining the corrosion of metals. One such model related annual steel corrosion to lead candle sulfation rates and relative humidity as in the following equations:

$$1967 \qquad Y = -27.3 + 23.7\ PB - 4.2\ PB^2 + 0.7\ RH$$

$$1968 \qquad Y = -22.6 + 27.5\ PB - 4.4\ PB^2 + 0.6\ RH$$

where Y is annual steel corrosion (μ/yr), PB is lead candle sulfation (mg of $SO_3/100cm^2$-day), and RH is relative humidity (%).

These equations account for 70 and 61 percent of the total station-to-station variations in annual steel corrosion. Because temperature did not appear to enhance the prediction power of these equations, it was not included in the equations.

The two equations imply not only that increased sulfation rates are accompanied by increased steel corrosion, but that a point is probably reached when additional sulfur dioxide would not contribute significantly to additional corrosion. A similar result was noted in work done by Upham:[2] a parabolic curve resulted when corrosion results were plotted as a function of exposure time.[19] Humidity also appears to enhance the rate of steel corrosion, but it was not as large a factor as sulfur oxides.

Quarterly steel exhibited a similar pattern in 1968:

$$Y = -38.9 + 59\ PB - 10\ PB^2 + 0.8\ RH$$

This regression equation explains 71 percent of the variances.

A slightly more realistic relationship–the interaction between moisture and sulfation rates and their combined effect on average quarterly steel corrosion–is given by:

$$1967 \qquad Y = -72 + 0.78\ PB\ RH - 9.9\ PB^2 + 0.78\ RH$$

$$1968 \qquad Y = -33 + 0.99\ PB\ RH - 11.6\ PB^2 + 0.53\ RH$$

where Y is the quarterly steel corrosion (μ/yr). These equations explained 76 and 74 percent of the variances.

Both of the latter equations imply that humidity enhances the rate of corrosion at a greater rate with higher levels of lead candle sulfation. Moreover, the two equations imply that sulfation levels are most important in determining corrosion when the relative humidity is greater than 25 times the average sulfation level, a condition that exists at most sampling sites.

For example, Station 103, Sunland Park, N. M., exhibited a lead candle sulfation rate of 1.9 units in the upper decile, a relative humidity of 44 percent in the lower decile, and a quarterly steel corrosion of 28 units in the second quartile. Station 104, Anthony, N. M., reported a lower sulfation rate, 0.1, and a correspondingly lower quarterly steel corrosion rate, 8, even though it was exposed to the same annual humidity as Station 103. These data indicate that sulfur oxides have a detrimental effect on steel even in a relatively low-moisture environment.

5.2.2 Moisture and Temperature

Silver, as previously noted, tarnished rapidly in the presence of hydrogen sulfide (H_2S). It is also known, however, that sulfur oxides (SO_X) induce a discoloration of silver that might interfere with that caused by hydrogen sulfide. To test this assumption, a regression approach was used to relate sulfation levels to silver tarnishing and to test whether or not the interaction was affected by moisture and temperature:

$$1967 \qquad Y = -60 + 22\ PB - 2.9\ PB^2 + 1.0\ T + 0.7\ RH$$

$$1968 \qquad Y = -57 + 25\ PB - 3.1\ PB^2 + 0.8\ T + 0.8\ RH$$

where Y is silver tarnishing (percent reflectance loss) and T is temperature (°F). These equations explained 53 and 51 percent of the variances.

The equations suggest that higher sulfation rates are accompanied by high silver-tarnishing rates and that temperature and humidity slightly enhance the tarnishing. The relatively small percent of explained variances is probably attributable to the effects of hydrogen sulfide.

In the analysis of zinc corrosion, humidity and temperature were found not to be significant contributors to the corrosion rate. Moreover, sulfation rate correlated poorly with zinc corrosion, and it now appears that unknown factors influence this measurement.

Screening of other components failed to add any significant explanations concerning meteorological effects, probably due to the averaging effects and lack of good simultaneous air quality data. In summary, meteorological parameters appear to affect, but not to be the major factors in determining, the responsiveness of the components.

5.3 CORRELATIONS BETWEEN COMPONENTS AND AIR QUALITY DATA

An ISP network station was located adjacent to each of the six CAMP stations. The monthly CAMP data for 1967 and 1968 were averaged for oxides of nitrogen, total oxidants, and sulfur dioxide. Then a correlation matrix (Table 5–3) was computed between the components and the CAMP values. The components used in this analysis were silver plates, lead candles, dustfall buckets, nylon panels, rubber panels, and sticky paper; components sampled for longer than a month were not included.

Table 5–3. CORRELATIONS AMONG MONTHLY CAMP AND EFFECTS COMPONENTS

Component	SO_2		NO_x		OX	
	1967	1968	1967	1968	1967	1968
Silver plate	0.61	0.53	0.38	0.21	-0.27	-0.12
Lead candle	0.92	0.91	0.68	0.55	-0.40	-0.50
Dustfall bucket	0.36	0.46	0.37	0.20	0.10	0.07
Monthly nylon panel	0.41	0.57	0.42	0.28	-0.09	-0.24
Rubber panel	-0.35	-0.51	-0.59	-0.35	0.63	0.60
Sticky paper	0.18	0.32	0.20	0.17	0.06	0.13

The most significant correlations for both years, 0.92 and 0.91, were observed between average sulfur dioxide concentrations and lead candle sulfation. After the data were plotted, the slopes of the least-squares line showed 25.7 and 23.5 milligrams of sulfur trioxide per 100 square centimeters per ppm of sulfur dioxide.

Reciprocals of these numbers, which approximate the factor for converting lead candle sulfation to ppm of sulfur dioxide, indicate a suitable range of from 0.03 to 0.04 ppm of sulfur dioxide per milligram of sulfur trioxide per 100 square centimeters per day.

It was anticipated that the extent of rubber cracking would correlate well with concentrations of ozone in the ambient air. The only air quality data that reflected ozone levels were the measurements of total oxidant taken at the CAMP stations; correlations of 0.63 and 0.60 were obtained in 1967 and 1968, respectively.

Other relationships were expected between some of the fabrics used in the effects package and CAMP air quality data. As expected, although further averaging of the 1968 quarterly CAMP data reduced the size of the data base and possibly the significance of the correlations, fabric No. 5 correlated with total oxidants, 0.56, and fabric No. 3 correlated with oxides of nitrogen, 0.72.

In each of the above correlation analyses, various meteorological parameters were included in an attempt to assess their impact. For example, wind speed, temperaure, and relative humidity were studied in determining the sulfation rate of lead candle, but the correlation between lead candle and sulfur dioxide was not significantly enhanced by the inclusion of these variables. Again, the averaging tendency of the component measurements probably suppressed substantially the apparently small influences of the weather variables. Similar statements can be made about rubber panels, other fabric panels, and the particulates.

Other air quality data from 19 NASN stations adjacent to ISP stations were analyzed. Suspended-particulate data from high-volume samplers were averaged to provide an annual 1968 mean, and these data were supplemented by data from high-volume samplers at the six CAMP stations. Correlations from all 25 pieces of data were computed between the values of total suspended particulates and the values reported by three components, dustfall bucket, sticky paper, and fabric No. 6, which were designed to measure particulates. The correlation coefficients, 0.71, 0.66, and 0.53, respectively, corroborate the belief that all of the measurements are an index of particulate contaminants. A further attempt to clarify the mutual responsiveness of the three components is presented below in the subsection on factor analysis.

5.4 FACTOR ANALYSIS

The "effects package" may be considered to be a network of measuring devices that is sensitive to basic air pollution factors. For example, dustfall collection buckets and sticky-paper samplers are two measurement devices that logically associate with one another because they are, to some degree, mutually affected by particulates, one aspect of air pollution. Similarly, measurements of sulfation and silver tarnishing are related to sulfur oxide and perhaps to other corrosive substances.

Although the relationships between the entire set of effects components is complex, the total variation in measurements can be summarized if a small number of air pollution factors can be identified and related to all components.

5.4.1 Factor Analysis Technique

The technique for estimating pollution factors is known as factor analysis, which approximates the covariation of a large number of variables by the variation in a few hypothetical constructs, or factors.

Portions of the following example of factor analysis appear in a monograph on multivariant analysis by Kendall.[20]

> Nine body measurements taken on several male volunteers were analyzed for "types" of body build by factor analyses.
>
> These measurements included standing height, sitting height, arm length, leg length, thigh length, abdomen girth, hip girth, shoulder girth, and weight.
>
> The hypothesis was that each body measurement for an individual is determined by several independent factors.
>
> The analysis indicated that two such factors accounted for 70 percent of the variation in the nine body measurements. The first factor was one which correlated with length and height variables and supposedly determined the lankiness of an individual.
>
> The second factor was one which positively correlated with girths and weight. This factor appeared to determine the bulkiness of an individual, apart from his length measurements.

The statistical procedure begins by assuming that each variable is the result of "loading" (or correlation) with each of several basic factors. The model expressing this relationship with the first variable is

$$X_1 = a_{11}f_1 + a_{12}f_2 + \ldots + U_1$$

where X_1 is the value of variate 1; $f_1 \ldots f_m$ are the basic air pollution factors; and $a_{11} \ldots a_{1m}$ correlate variable 1 with factors 1 through m. Variable U, which represents the unexplained portion of the variable, is assumed to be a combination of unaccounted for factors or the "uniqueness" of that particular variable. A large uniqueness element implies that the basic factors do not account for the variation exhibited by that variable. Further assumptions in the factor model are that the factors are independent of one another, and that the unique element for each variable is independent of the basic factors and the other variables.

The factor-loading matrix is an array of correlations between variables and factors. Each row represents the correlations of a variable with all factors. The coefficients (a_{1j}) in the equation are the first row of the factor-loading matrix, and the pattern in which the factor-loadings associate with the variables describes the factors. Within each factor, only a few variables will have high loadings; these may be denoted as factor descriptors. The sum of squares of all loadings for a factor represents the portion of the total experimental variation that is attributable to that factor; the success of the factorization is partly measured by the total of these explained variances.

The particular factor analysis technique used for the effects data is known as principal factor analysis.[21] This method consists of performing a principal analysis of the correlation matrix of components to extract successive independent factors that maximally explain the total variation of the original variates. The first principal component is thus a combination of the effects variables that explains the largest fraction of the experimental variation. (When the correlation matrix is used for the analysis, the total variance is equal to the number of variables.) The procedure continues with the rotation of these principal components in such a manner that the basic relationship among the variables is unaltered. The criterion for the rotation–that each of the resulting factors have large correlations with some variables and low correlation with the others–is achieved by a "varimax technique," in which the sum of the variances of the factor-loadings is maximized.

All of the variables, or components, were not used in the factor analysis. Fabrics No 1 and No. 9 are sensitive to humidity and were discarded as candidates for describing air pollution. Fabric No. 8, thought to be nonspecific to air pollutants, was omitted when its insensitivity became more apparent. Nylon panels were omitted because they were not strongly associated with other components; they tended to respond in a manner that yielded an extremely skewed frequency distribution. Moreover, because nylon appears to react to acid aerosols and to short intervals of air pollution, it is not suited for this type of analysis.

The data for the factor analysis were collected by networks and key components that varied slightly over the 2-year period. First, there was an increase in the number of stations: sufficient data were available for 115 stations in 1967 and 168 stations in 1968. The number of stations differs slightly from those given in Section 5.1 because fewer meteorological restrictions were in effect for the factor analysis. Second, different components were included: fabrics No. 2 and No. 4 were used in 1967 only, and fabrics No. 5, No. 6, and No. 7 and the petri dish sulfation method were included in 1968 only.

5.4.2 Results

Results of the factor analyses for the two years are presented in Table 5–4. Only three factors were considered because of the variance explained by each factor; that is, other factors did not contribute significantly to the percentage of total variance explained.

Table 5–4. FACTOR LOADINGS FOR 1967 AND 1968

Variable	Factor						% of variance explained	
	Corrosion		Dirtiness		Oxidation potential			
	1967	1968	1967	1968	1967	1968	1967	1968
Zinc, annual	0.51	0.56	0.20	0.21	-0.03	0.01	30	36
Steel, annual	0.94	0.91	0.01	0.02	-0.08	-0.16	89	86
Steel, quarterly	0.92	0.90	0.14	0.15	-0.09	-0.17	88	87
Lead candle	0.67	0.74	0.61	0.54	-0.14	-0.12	84	85
Sulfation plates		0.71		0.57		-0.12		84
Silver tarnishing	0.73	0.71	0.10	0.17	-0.12	-0.13	56	54
Fabric No. 2	0.29		0.77		-0.17		70	
Fabric No. 3	0.74	0.72	0.40	0.33	-0.07	-0.03	71	63
Fabric No. 4	0.31		-0.58		0.64		84	
Fabric No. 5		-0.06		-0.53		0.72		80
Fabric No. 6		0.39		0.74		-0.06		71
Fabric No. 7		0.15		0.80		-0.12		68
Rubber cracking	-0.37	-0.16	-0.11	-0.05	0.89	0.93	93	89
Sticky paper	0.08	0.21	0.93	0.85	0.00	-0.16	86	80
Dustfall	0.38	0.26	0.70	0.62	-0.27	-0.44	70	64
% of variance explained by factors	36	33	26	26	13	13	75	72

Note the consistency between the results of the factor analysis for 1967 and 1968. Despite the basic differences in the data sets for the 2 years, the percentages of total variance explained by the three factors were nearly the same: 75 percent for 1967 and 72 percent for 1968. In addition, the variances explained by the individual factors are amazingly similar for the 2 years.

The right-hand column of Table 5–4 indicates the extent to which the three factors, when combined, explain the variability of an effects measurement between sampling stations. The data for zinc stand out because the three factors explain only about one-third of the between-station variability in the weight loss of the exposed panels. The loss suggests that zinc is affected by mechanisms not considered in this study. As can be seen, however, the three factors explain nearly 90 percent of the variability in measurements such as steel deterioration and rubber cracking.

The highest corrosion loadings for 1967 and 1968, coded as Factor 1, respectively, are associated with annual steel, 0.94 and 0.91; quarterly steel, 0.92 and 0.90; fabric No. 3, 0.74 and 0.72; silver tarnishing, 0.73 and 0.71;

lead candle sulfation, 0.67 and 0.74; sulfation plates, 0.71 in 1968; and annual zinc, 0.51 and 0.56. Thus Factor 1 has been tentatively labeled a measure of the corrosive effects of atmospheric pollutants.

Factor 2 shows highest loadings with sticky paper, 0.93 and 0.85; dustfall bucket, 0.70 and 0.62; fabric No. 2 for 1967, 0.77; fabric No. 6 for 1968, 0.74; fabric No. 7 for 1968, 0.80; lead candle, 0.61 and 0.54; and sulfation plate for 1968, 0.57. In addition, this factor exhibits a loading of -0.53 for fabric No. 5 in 1968. Fabrics No. 4 and No. 5 were initially selected for their presumed sensitivity to ozone. Ozone bleaches the fabrics and changes them from a darker to a lighter color. If a fabric were to be sensitive to dirtiness, the fabric would darken, and there would be an indirect relationship between color change and dirtiness. Factor 2 appears to be a measure of dirtiness or soiling potential.

Factor loadings for Factor 3 are the highest for rubber cracking, 0.89 and 0.93; fabric No. 4 for 1967, 0.64; and fabric No. 5 for 1968, 0.72. As before, fabrics No. 4 and No. 5 were selected for their sensitivity to ozone concentrations, which are correlated with the cracking of rubber. Thus, Factor 3 has been identified as an index of oxidation potential, not necessarily a smog index.

5.4.3 Factor-Score Matrix

A measure of the severity represented by a particular factor at a particular station is provided by a factor-score matrix. A factor-score matrix is composed of normalized factor-scores, such as mean zero or standard deviation of one, which may be related to cumulative frequencies of occurrence in a fashion similar to other summarizing statistics. For example, if it can be assumed that the factor-scores are approximately normally distributed, those greater than one would occur about 15 percent of the time.

A factor-score matrix was computed for both years. The consistency among the factor-scores for the 2 years was remarkable. Computed scores, available at 88 stations for both years, were highly correlated: for example, corrosion was correlated at 0.95, dirtiness at 0.93, and oxidation potential at 0.91. These results demonstrate the tendency of areas to remain relatively constant from year to year.

In addition, factor severity indexes (FSI) were defined for corrosion and for dirtiness. A value of X was assigned if the factor-scores were among the top quartile, 0.7 to 1.4; S was assigned if they were among the top decile, 1.4 or greater. The FSI indexes were compared with the pollution code numbers (PCN) and their corresponding relative severity indexes from Section 4.1.1. Stations in areas listed in Tables 5–3 and 5–4 were compared for effects from particulates and sulfur oxides. (Factor-scores were not available–and were coded NA–for areas not included.) These data are presented in Table 5–5.

In general, agreement was good between the particulate code number indexes and the dirtiness FSI. Table 5–5 shows that Detroit, Steubenville, and Huntington have dirtiness FSI's that indicate a less severe problem than the corresponding severity indexes for particulates. The factor-scores were 1.3 for Huntington and 1.2 for Detroit; these were close to the upper decile, 1.4. The discrepancy is not large, but the factor-score for Steubenville, which was relatively low, at 0.7, cannot be explained at this time.

The FSI's also indicated that Denver and New York have severe dirtiness problems. Although the PCN's indicate only moderate problems for both areas, Appendix C shows that dustfall bucket and sticky-paper results ranked in the upper decile, and fabric No. 6 ranked in the third quartile. The averaging of these indexes indicates only a moderate problem, or X. The factor-scores are based on a linear combination of these three components with more weight being given to data from sticky paper and dustfall collectors than to data from fabric No. 6; for this reason, the FSI is larger for the first two components.

The corrosion FSI was compared with the PCN for sulfur oxide in Table 5–6. Because corrosion is affected by elements other than sulfur oxides, the two indexes are not necessarily measurements of the same quantity; nevertheless, there is generally good agreement.

All areas designated severe, S, by PCN's were rated severe by the corrosion FSI. The FSI selected Boston as an area with severe corrosion, but the PCN for sulfur oxides indicated only moderate corrosion. Corrosion, however, does not necessarily correspond to sulfur oxides only.

5.5 DISCUSSION OF ANALYSES

The complex relationships among the components and the ways they respond to air pollutants and meteorological parameters are not easily determined by correlation techniques. Many of the air contaminants that probably affect the components were not monitored, and their influences could not be directly measured. These unmeasured quantities frequently revealed themselves as correlations with other variables that probably have little influence on the components. One example of this was the case in which sulfur dioxide "explained" variability in silver tarnishing not only because of the effect of sulfur dioxide, but probably also because of the mutual occurrence of sulfur dioxide and hydrogen sulfide, which also tarnish silver.

Table 5–5. COMPARISON OF "DIRTINESS" FACTOR SEVERITY AND PARTICULATE SEVERITY INDEX

Area name	PCN relative severity index	Factor severity index (FSI)
Detroit, Michigan	S[a]	X[b]
Steubenville, Ohio	S	X
Youngstown, Ohio	S	S
Buffalo, New York	S	S
Chicago, Illinois	S	S
Fall River, Massachusetts	X	—[c]
Bridgeport, Connecticut	X	N[d]
Louisville, Kentucky	X	X
New York, New York	X	S
Philadelphia, Pennsylvania	S	N
Cincinnati, Ohio	X	X
St. Louis, Missouri	X	X
Huntington, West Virginia	S	X
Wilmington, Delaware	X	—
Toledo, Ohio	X	N
Boston, Massachusetts	X	X
Springfield, Massachusetts	X	X
Denver, Colorado	X	S
Washington, D.C.	X	X
New Orleans, Louisiana	X	X
Laredo, Texas	X	X
Hartford, Connecticut	X	X
Davenport, Iowa	X	X
Dubuque, Iowa	X	X
Sioux City, Iowa	X	N

[a] S indicates among top decile.
[b] X indicates among top quartile.
[c] — indicates among lower three quartiles.
[d] N indicates no score available.

In other words, correlation and multiple correlations must be viewed in the light of known and suspected mechanisms that govern component responses, and the likelihood of the presence of these factors at sampling sites. In spite of these limitations, a few general statements can be made.

The effects of meteorology on the components' responsiveness appear to be less dominant factors than the quality of the air. This statement is supported by the relatively small degree of correlation observed between components and meteorological parameters. The most significant relationship was the effect of the interaction of relative humidity and oxides of sulfur, as measured by lead candle, on the rate of steel corrosion; this correlation demonstrated that the corrosiveness of the atmosphere is greatly enhanced by the presence of sulfur oxides, especially in a humid environment.

Many of the components were well related to corresponding air quality measurements. In particular, sulfation plates and sulfation candles were highly correlated, 0.9 or above, with sulfur dioxides concentrations. In addition, data from dustfall, sticky paper, and fabric No. 6 components correlated positively, 0.71, 0.66, and 0.53, with annual averages of total suspended particulate data collected on high-volume samplers. The correlation was observed even though not all of these four methods measure the same types of particulates.

Correlations between air quality measurements, which are partly representative of ozone levels and rubber cracking, were reasonably good at 0.63 and 0.60.

In addition, data from fabric No. 3, which was designed to measure oxides of nitrogen, were reasonably well correlated at 0.72 with oxides of nitrogen.

Table 5–6. COMPARISON OF "CORROSIVE" FACTOR SEVERITY INDEX AND SULFUR OXIDES SEVERITY INDEX

Area name	PCN relative severity index	Factor severity index (FSI)
Fall River, Massachusetts	X	X
Steubenville, Ohio	S[a]	S
Bridgeport, Connecticut	X[b]	N[d]
Chicago, Illinois	S	S
New York, New York	X	X
Louisville, Kentucky	X	–[c]
Boston, Massachusetts	X	S
Detroit, Michigan	X	X
St. Louis, Missouri	S	S
Philadelphia, Pennsylvania	X	N
Cincinnati, Ohio	–	–
Beaumont, Texas	–	–
Toledo, Ohio	X	N
Youngstown, Ohio	X	–
Springfield, Massachusetts	X	X
Hartford, Connecticut	X	–
El Paso, Texas	X	–
Easton, Pennsylvania	X	X
Buffalo, New York	S	S
Wilmington, Delaware	X	X
Albany, New York	X	N
Sarnia, Ontario, Canada	X	–
Trenton, New Jersey	X	N
Evansville, Indiana	X	X
Owensboro, Kentucky	X	–
Providence, Rhode Island	X	X
Huntington, West Virginia	X	X

[a] S indicates among top decile.

[b] X indicates among top quartile.

[c] – indicates among lower three quartiles.

[d] N indicates no score available.

The results of a factor analysis of the component responses revealed that three basic factors, corrosion, dirtiness or soiling potential, and oxidation potential, explain most of the variation. The three variables that correlated most highly with the three base factors were quarterly steel corrosion, sticky paper, and rubber cracking, respectively. Therefore, if information is desired about these three factors from the measurement of only three variables, these probably would provide the most information.

Factor-scores are apparently good indicators of the relative severity of these three types of problems. This statement is supported by the good association between emission density and the factor severity index (FSI). Several components, however, which did not respond to these factors, were apparently responsive primarily to meteorological parameters or unmeasured air pollution factors. Fabrics No. 1 and No. 9 responded more strongly in more humid atmospheres; nylon panels seemed to respond in a manner that could not be explained by either the predominance of these three factors or by the influences of meteorological fluctuations.

5.6 DISCUSSION OF COMPONENTS

The following is a brief discussion of each component of the sampler.

5.6.1 Zinc Panels

The correlation analysis showed the zinc panel to be positively correlated with most of the other 17 components in the effects package sampler. The highest correlations, about 0.50, were with the sulfation candle and plate components. In the factor analysis, the zinc panel was a significant parameter in the factor identified as corrosion, but since the loading of 0.50 was much lower than those for steel corrosion and sulfation, 0.90 and 0.70, respectively, the zinc panel is probably a less desirable indicator of atmospheric corrosion than steel panels.

5.6.2 Steel Panels

Both quarterly and annual corrosion rates for steel panels correlated positively with sulfation and relative humidity. The quarterly analysis showed the highest corrosion rates in the winter months; because of the seasonal pattern, quarterly measurements provide more information about pollutant effects than annual measurements. A multiple regression analysis showed that the variability in sulfation rates and relative humidity accounted for between 60 and 70 percent of the variance (multiple correlation about 0.8) in steel corrosion rates. Thus, for a given level of sulfur oxides in the atmosphere, the effect of steel corrosion is enhanced by increased relative humidity.

In the factor analysis, steel corrosion rates appeared to be the most significant parameter in the factor labeled corrosion; the factor loading was greater than 0.90.

5.6.3 Sulfation Candles and Plates

Sulfation measurements can be made equally well with candles and plates: the correlation between the two methods was 0.99. In the comparison between sulfation candles and sulfur dioxides (conductivity) measured at six CAMP stations, the correlations were 0.92 and 0.91 for 1967 and 1968. (The conversion factor to convert sulfation rates to sulfur dioxide is approximately: 1 milligram of sulfur trioxide per 100 square centimeters per day equals 0.04 ppm sulfur dioxide.) Sulfation rates for both candles and plates loaded reasonably high in the corrosion factor, indicating the influence of sulfur dioxide upon corrosion.

5.6.4 Rubber Panels

Many researchers have reported that the amount of cracking of exposed rubber panels and the amount of ambient ozone concentrations are related. The six CAMP stations showed a correlation of 0.60 between rubber cracking and total oxidants. At stations in comparatively unpolluted urban and rural areas, the high values observed were probably related to the amount of ozone, not total oxidant, present. The factor analysis showed rubber cracking as the most significant parameter in the factor identified as oxidation potential.

5.6.5 Dustfall Buckets

Dustfall measurements provide an estimation of settleable particulates. These measurements had a fairly high loading with the factor labeled "dirtiness" of the factor analysis study.

5.6.6 Sticky Paper

Sticky paper is used to estimate the amount of windblown particulates. The correlation with dustfall measurements was 0.69 for both 1967 and 1968. In the factor analysis, sticky paper was the most significant parameter in the factor labeled "dirtiness;" this measurement, therefore, appears to be a better estimator of the factor labeled "dirtiness" than dustfall.

5.6.7 Nylon Panels

Exposed nylon primarily measures sulfuric acid mist and acid aerosols. There was a high correlation, 0.99, between the monthly and quarterly deterioration rates, but essentially no correlation between nylon and the other 17 components. Nylon was therefore not considered in the factor analysis.

5.6.8 Dye-Fabric Combinations

Fabric No. 1 did not correlate highly with any other component. Fading of this fabric, which correlated reasonably well with relative humidity, indicated a tendency toward increased color loss with increased humidity.

Fabric No. 2 was quite stable. Any color changes caused by exposure probably resulted from soiling. The rate of color change was positively correlated with dustfall and sticky-paper measurements, 0.62 and 0.63, respectively, and with sulfation rates, 0.66. In the factor analysis for 1967, it was a significant parameter in the factor labeled "dirtiness."

Fabric No. 3, thought to be sensitive to oxides of nitrogen, correlated highly, at 0.72, with nitrogen oxides. The rate of color fading was also positively correlated with steel corrosion and sulfation rates. In the factor analysis, the rate of color fading showed up as a significant parameter in the factor labeled corrosion.

Fabric No. 4, known to be sensitive to ozone, showed the highest negative correlation with sticky paper, -0.55, indicating greater color loss in cleaner atmospheres–atmospheres with less particulates–but its correlation with rubber cracking was 0.40. In the factor analysis for 1967, fabric No. 4 was the second most significant parameter in the factor labeled oxidation potential.

Fabric No. 5, also known to be sensitive to ozone, was used in 1968 in place of fabric No. 4. It showed a positive correlation, 0.59, with rubber cracking, and negative correlations of -0.49, -0.56, and -0.58 with sulfation, dustfall, and sticky-paper measurements, respectively. In the factor analysis, fabric No. 5 had the second highest loading, 0.72, in the factor labeled oxidation potential.

Fabric No. 6, selected as an indicator of soiling, correlated highly with sulfation rates, 0.68, and sticky paper, 0.64. In the factor analysis, fabric No. 6 was a significant parameter in the factor labeled dirtiness.

Fabric No. 7, selected with no prior knowledge of specific pollutant effects, showed a positive correlation with sulfation rates, dustfall, and sticky paper. Of special significance is that fabric No. 7 had the second highest loading, 0.80, for the factor labeled dirtiness, for which sticky paper was the most important parameter.

Fabrics No. 8 and No. 9, selected with no particular pollutant effect in mind, did not show any interrelationships with other components. Because of the low correlations, these fabrics were not included in the factor analysis. These fabrics provided essentially no information about exposures to pollutants.

5.6.9 Silver Plates

Silver tarnishing, selected as an indicator of hydrogen sulfide, is also known to be affected by sulfur dioxide. Silver tarnished by hydrogen sulfide, however, has a distinctive dark blue or black appearance not normally associated with the tarnishing effects of sulfur dioxide. The highest correlations, greater than 0.60, were observed with annual and quarterly steel corrosion rates; correlations with sulfation rates were slightly more than 0.50. In the factor analysis, silver tarnishing showed up as a significant parameter in the corrosion factor, but its loadings of 0.73 and 0.71 for 1967 and 1968 were much lower than those for annual and quarterly steel, about 0.90.

6. CONCLUSIONS

James Cavender and Norman Huey

The effects-sampling system was designed to be used in estimating the nature and extent of air pollution on a long-term basis. Individual components used in the sampler were selected because of their simplicity and relatively low cost of preparation, operation, and analysis. In keeping with the concepts of simplicity and low cost, the system was designed to be a static testing device requiring no electricity. As a result the system can be easily located in remote locations.

After evaluating the performance of the effects sampler network, the investigators made the following conclusions:

1. The effects sampler is capable of detecting the existence of five major pollutants and one potential problem. These are sulfur oxides, particulates, nitrogen oxides, hydrogen sulfide, acid aerosols, and oxidation potential. The conclusion is based upon either direct correlation of sampler data with air quality or emissions data, or on strong evidence of source-receptor relationships. Detection of evidence of these pollutants does not necessarily imply knowledge of specific concentration levels.

2. The effects sampler can be used to detect gross differences in pollution levels. This conclusion was substantiated by the differences observed in the frequency distribution of pollutants at various classes of stations, by comparison of pollutant levels with emission levels, and by correlations with air quality data. By computing the frequency distribution of annual averages and comparing individual stations and/or areas to this nationwide distribution, an indication of relative severity could be obtained. This procedure would have the same limitations as those implied by the basic data; it would, however, provide a means of comparison between stations for a variety of pollutant indicators.

3. Components of the sampler can provide evidence of air pollution effects. The most notable effects are related to corrosion; however, damage to rubber and nylon was also noted. It was shown that corrosion was enhanced by air pollutants, specifically sulfur dioxide. (The best indicator of corrosion was quarterly steel.) No direct relationships were found to explain the amount of damage for specific pollutant levels.

4. The effects sampler currently has 18 components. Evaluation has shown, however, that some of the components are redundant and other are not specific indexes of air pollution. Evaluation shows that the eight components listed in Table 6–1 provide valid data relative to the pollutant or effect cited.

Table 6–1. COMPONENTS USED IN EFFECTS SAMPLING

Component	Pollutant or effect
Sulfation plate	Sulfur dioxide
Sticky paper	Soiling potential, particulate
Dustfall	Soiling potential, settleable particulate
Quarterly steel	Corrosion
Fabric No. 3	Oxides of nitrogen
Silver plate	Hydrogen sulfide
Rubber strip	Oxidation potential
Monthly nylon	Acid aerosol

5. The effects network has limitations:

   a. Exposure periods for the components vary from 7 days to 1 year, which makes it difficult to analyze the results.

   b. Air pollutants or their effects cannot be determined over short time intervals.

   c. Data provided by some of the components are questionable in that specific knowledge of what they are measuring is lacking.

   d. Detailed knowledge of replicate sampling errors for the individual components is not available.

   e. The network does not permit a detailed assessment of meteorological influences on the data.

6. The effects sampler is a valid measuring device for its original purpose. The network–or a modified version of it–can provide the following information:

a. Pollution problems or potential problems in areas where few data are available.
b. Preliminary information for further expenditure of resources.
c. Gross estimates of pollution levels for the pollutants described previously and continuing gross data in an area over time.
d. Data from an individual station for comparison with frequency distributions of nationwide data as an index of relative severity.
e. Data from the exposure of other promising static devices on a nationwide scale.

7. REFERENCES

1. Vernon, W. H. J. A Laboratory Study of Atmospheric Corrosion of Metals. Trans. Farad. Soc. 31: 1668-1700, 1935.
2. American Association of Textile Chemists and Colorists. Effects of Atmospheric Contaminants on Light-fastness Testing. American Dyestuff Reporter. 450-451, June 1958.
3. LaBarthe, J. Ten Thousand and One Customer Complaints. Text. Res. J., 24: 329, April 1954.
4. Slayin, V. S. Effect of Air Pollutants on Dyed Fabrics. J. Air Pollut. Contr. Ass., 13: 416-422, September 1963.
5. Greenburg, L., and M. B. Jacobs. Corrosion Aspects of Air Pollution. Amer. Paint J. 39: 64-78, July 1955.
6. Antler, M., and J. Gilbert. Effects of Air Pollution on Electric Contacts. J. Air Pollut. Contr. Ass. 13: 405-415, September 1963.
7. Crabtree, J., and A. R. Kemp. Weathering of Soft Vulcanized Rubber. Ind. Engr. Chem. 38: 278-296, 1946.
8. Accelerated Ozone Weathering Test for Rubber. Anal. Chem., 18: 769-774, December 1946.
9. Gaughan, J. E. Ozone Cracking of Natural and Synthetic Rubber. Rubber World, 133(6): 803-808, March 1956.
10. Vega, T., and C. J. Seymour. A Simplified Method for Determining Ozone Levels in Community Air Pollution Surveys. J. Air Pollut. Contr. Ass. 11: 28-44, January 1961.
11. Parker, A. Destructive Effects of Air Pollution on Material. (Sixth Des Voeux Memorial Lecture. Presented at the Annual Conference of the National Smoke Abatement Society. Bournemouth, England, September 28, 1965, p. 3-15.)
12. Huey, N. A. Lead Dioxide Estimation of Sulfur Dioxide Pollution, J. Air Pollut. Contr. Ass. September 1968.
13. Huey, N. A., and W. Waller. Field Evaluation of an Improved Sulfation Measurement System. National Air Pollution Control Administration. Paper No. 69-133. Presented at the 62nd Annual Meeting of APCA, June 1969.
14. ASTM Standard Method D-1739. Part 23. Philadelphia, American Society for Testing and Materials. 1968. p. 505-508.
15. Nader, J. S. Dust Retention Effluences of Dustfall Collectors. J. Air Pollut. Contr. Ass. 8: 35-38.
16. Gruber, C. W., and G. A. Jutze. The Use of Sticky Paper in an Air Pollution Monitoring Program. J. Air Pollut. Contr. Ass., 7: 115-117, August 1957.
17. Faulkner, Dean L., Charles E. Schumann, and Charles W. Gruber. Particulate Sampling by Adhesive-Coated Materials. U.S. Public Health Service. Raleigh, N.C. Final Report. October 1969.
18. Sereda, P. J. Atmospheric Factors Affecting the Corrosion of Steel. Ind. Eng. Chem. 2: 157-160, February 1960.
19. Upham, J. B. Atmospheric Corrosion Study in the St. Louis-East St. Louis Metropolitan Area. Unpublished NAPCA report. Undated.
20. Kendall, M. G. A Course in Multivariant Analysis. London, Charles Griffin and Co., 1961.
21. Harmon, H. H. Modern Factor Analysis. 2nd ed. Chicago, University of Chicago Press, 1967. Chapter 8.

BLANK PAGE

APPENDIX A.

LIST OF INTERSTATE SURVEILLANCE PROJECT STATIONS BY STATE

Table A–1. INTERSTATE SURVEILLANCE PROJECT STATIONS

Station number	Station location
	ALABAMA
143	Phenix City – 1302 Broad Street, Phenix City, Alabama
146	Mobile – Mobile County Board of Health Building, 248 Cox Street, Mobile, Alabama
	ALASKA
246	Anchorage – 527 East Fourth Street, Anchorage, Alaska
247	Fairbanks – Third and Cushman Sts., Federal Post Office, Fairbanks, Alaska
	ARIZONA
90	Davis Dam – Davis Dam, Bullhead City, Arizona
92	Yuma – Court House, Second Ave. and Second St., Yuma Arizona
101	Nogales – U.S. Quarantine Station, Nogales, Arizona
102	Douglas – U.S. Quarantine Station, Douglas, Arizona
261	Clifton – Court House, Clifton, Arizona
268	Phoenix – 4019 North 33rd Avenue, Phoenix, Arizona
	ARKANSAS
129	Texarkana – U.S. Post Office, Texarkana, Arkansas
208	Crossett – Forth and Main, Crossett, Arkansas
209	West Memphis – Fire Station No. 1, 7th and Thompson, W. Memphis, Arkansas
210	Ft. Smith – Civic Auditorium, Parker-Wheeler Ave., Fort Smith, Arkansas
	CALIFORNIA
91	Needles – City Hall, Front and G St., Needles, California
93	Calexico – Calexico Fire Department, Calexico, California
94	San Ysidro – Brown Field, Otay Mosa Road, San Ysidro, California
95	Oakland – Howden Building, 337 W. 17th St., Oakland, California
96	South Tahoe – City Hall, South Lake Tahoe, California
239	Los Angeles – 228 W. Palm, Burbank, California
240	Los Angeles – 434 S. San Pedro St., Los Angeles, California
	COLORADO
27	Denver – 2105 Broadway, Denver, Colorado
	CONNECTICUT
21	Greenwich – Port Chester Fire Station, Greenwich, Connecticut
183	Thompsonville – Pearl St., Thompsonville, Connecticut
184	Hartford – Hartford, Connecticut
185	Pawcatuck – Pawcatuck Fire Headquarters, 33 Liberty Street, Pawcatuck, Connecticut
243	Bridgeport – 274 Middle Street, Bridgeport, Connecticut
	DELAWARE
8	Wilmington – City Hall, Tenth and King St., Wilmington, Delaware
9	Claymont – Fire Station No. 13, 3223 Philadelphia Pk., Claymont, Delaware
	FLORIDA
68	Tampa – Fire Station, 17 E. Davi Blvd. and Cayuga, Tampa, Florida
130	Oneca – State Ranger Fire Tower, State Road 70, Oneca, Florida
135	Broward – 2421 S.W. Sixth Avenue, Ft. Lauderdale, Florida
145	Pensacola – Plaza Bldg., Pace Blvd. and Fairfield Drive, Pensacola, Florida
231	Fernandina Beach – Amelia Light Station, Fernandina Beach, Florida

Table A–1 (continued). INTERSTATE SURVEILLANCE PROJECT STATIONS

Station number	Station location
	FLORIDA (continued)
232	Fernandina Beach – 4th and Ash, Fernandina Beach, Florida
233	Gainesville – University of Florida Campus, Gainesville, Florida
	GEORGIA
131	Augusta – 10001 Ballis Drive Augusta, Georgia
132	Savannah – City Hall, Bull and Bay Street, Savannah, Georgia
134	St. Marys – City Hall, St. Marys, Georgia
141	Rossville – 1430 Suggs Street, Rossville, Georgia
142	Columbus – 1958 8th Avenue, Columbus, Georgia
	HAWAII
241	Honolulu – 1250 Punchbowl St., Honolulu, Hawaii
242	Hilo – Mauna Loa Obs., Mauna Loa Volcano, Hilo, Hawaii
	IDAHO
71	Coeur D'Alene – City Hall, Coeur D'Alene, Idaho
74	Lewiston – St. Highway Garage, North-South Highway, Lewiston, Idaho
75	Lewiston – 1221 F Street, Lewiston, Idaho
	ILLINOIS
26	Chicago – 445 S. Plymouth Court, Chicago, Illinois
46	East St. Louis – 628 North 20th., East St. Louis, Illinois
54	Chicago – Taft School, 5625 W. Natoma, Chicago, Illinois
55	Calumet City – N. School, 755 Pulaski Road, Calumet City, Illinois
56	Hennepin – Hennipin Grade School, Hennipin, Illinois
57	Rock Island – 1528 Third Avenue, Rock Island, Illinois
58	Moline – City Hall, 619 Sixteenth Street, Moline, Illinois
136	Cicero – Roosevelt School, 15th Street and 50th, Cicero, Illinois
137	Bedford Park – Public Works, 6535 S. Central, Bedford Park, Illinois
138	Chicago Heights – B. Township School, Dixie Highway and Tenth, Chicago Heights, Illinois
139	Palatine – Palatine Township School, 1000 Quentin, Palatine, Illinois
228	East Dubuque – Fire Department, 197 Sinsinawa, East Dubuque, Illinois
258	Cairo – Police Headquarters, City-County Building, Cairo, Illinois
259	Metropolis – Massac Hospital, Adkins Circle, Metropolis, Illinois
	INDIANA
40	Jeffersonville – Fire Station No. 1, 8th and Wall, Jeffersonville, Indiana
42	Tell City – Tell and 12th Street, Tell City, Indiana
44	Evansville – 1065 W. Pennsylvania St., Evansville, Indiana
52	East Chicago – Pine Street and Broad, E. Chicago, Indiana
53	Hammond – 5925 Calumet Avenue, Hammond, Indiana
149	Gary – 1 Fire Station, Gary, Indiana
263	Charlestown – City Building, 701 Main Street, Charlestown, Indiana
	IOWA
59	Davenport – 331 Scott, Davenport, Iowa
201	Sioux City – City Hall, 405 6th Street, Sioux City, Iowa
203	Council Bluffs – Fire Station No. 2, 27th St.-1st Ave., Council Bluffs, Iowa
227	Dubuque – City Garage, 14th and Elm, Dubuque, Iowa

Table A–1 (continued). INTERSTATE SURVEILLANCE PROJECT STATIONS

Station number	Station location
	KANSAS
47	Kansas City – 3rd and Richmond Sts., Kansas City, Kansas
87	Kansas City – Morse School, Miami and Baltimore, Kansas City, Kansas
88	Overland Park – D. Moody School, 10101 England, Overland Park, Kansas
204	Elwood – Elwood Fire Station, Kentucky and 6th St., Elwood, Kansas
	KENTUCKY
39	Louisville – 7th St. and W. Jefferson, Louisville, Kentucky
41	Hawesville – Route 60 and 271, Hawesville, Kentucky
43	Owensboro – 1316 W. Fourth Street, Owensboro, Kentucky
67	Ashland – Kentucky State Bldg., 19th and Carter, Ashland, Kentucky
106	Frankfort – 275 E. Main Street, Frankfort, Kentucky
154	Covington – Post Office, 7th. and Scott, Covington, Kentucky
161	Henderson – Henderson City Health Dept., 438 5th St., Henderson, Kentucky
260	Paducah – Seventh and Washington, Paducah, Kentucky
	LOUISIANA
124	Sulfur – Sulfur Health Unit, 201 Edgar, Sulphur, Louisiana
213	Shreveport – 1866 Kings Highway, Shreveport, Louisiana
214	Bogalusa – Fire Station No. 2, Arkansas Street, Bogalusa, Louisiana
215	Vidalia – Fire Station, 500 Fifth Street, Vidalia, Louisiana
216	Bastrop – Franklin and Cypress St., Bastrop, Louisiana
217	Tallulah – 400 E. Green Street, Tallulah, Louisiana
218	New Orleans – Civil Court Building, Loyola-Poydras St., New Orleans, Louisiana
219	Carville – Power Plant, Roof of Hospital, Carville, Louisiana
	MAINE
176	Eliot – Eliot Fire Station, 141 St., Route 103, Eliot, Maine
193	Madawaska – Fire Station, Main Street, Madawaska, Maine
	MARYLAND
111	Cheverly – Health Department, Hospital Drive, Cheverly, Maryland
150	Cumberland – City Hall, N. Center and Frederick, Cumberland, Maryland
151	Bloomington – Bloomington Elementary School, Bloomington, Maryland
	MASSACHUSETTS
177	Lawrence – Lawrence Exp. Station, 37 Shattuck St., Lawrence, Massachusetts
182	Springfield – 148 Taylor St., Springfield, Massachusetts
190	Attleboro – Park and Union St., Attleboro, Massachusetts
191	Fall River – 123 N. Main Street, Fall River, Massachusetts
192	Boston – Ford Building, Somerset and Ashburton Place, Boston, Massachusetts
	MICHIGAN
34	Detroit – Bell Island Police Radio Station, Detroit, Michigan
35	River Rouge – Ann Visger Elementary School, 11121 W. Jefferson Street, River Rouge, Michigan
162	Grosse Ile – Wyandotte Chemical, Hennepin Island, Gross Ile, Michigan
163	Livonia – Bentley High School, 15100 Hubbard, Livonia, Michigan
164	Sumpter Township – Hoffman Jr. High School, 50700 Willow Road, Sumpter Township, Michigan
166	Port Huron – Port Huron Water Filter Plant, 1200 Pinegreen Avenue, Port Huron, Michigan

Table A–1 (continued). INTERSTATE SURVEILLANCE PROJECT STATIONS

Station number	Station location
	MICHIGAN (continued)
167	St. Clair – St. Clair State Police Post, St. Clair, Michigan
196	Dearborn – Dearborn, Michigan
223	Sault St. Marie – Portage Street, Sault St. Marie, Michigan
224	Ann Arbor – School of Public Health, Ann Arbor, Michigan
	MINNESOTA
49	Duluth – West Irst St., and 4th Avenue, Duluth, Minnesota
225	Winona – Center Fire Station, 3rd and Laird, Winona, Minnesota
248	East Grand Forks – Fire Dept., 115 N. 4th East, Grand Forks, Minnesota
249	Moorhead – 6th and Main, Moorhead, Minnesota
250	Ortonville – Municipal Hospital, Eastvold Avenue, Ortonville, Minnesota
251	International Falls – Customs Building, Highway 71-51, International Falls, Minnesota
	MISSISSIPPI
234	Pascagoula – Fire Station No. 4, Pascagoula, Mississippi
235	Natchez – Liberty Road and Sargent Prentiss Drive, Natchez, Mississippi
236	Vicksburg – Central Fire Station, Vicksburg, Mississippi
269	Jackson – 416 North State Street, Jackson, Mississippi
	MISSOURI
28	St. Louis – 215 S. 12th Street, St. Louis, Missouri
45	St. Louis – Hurck and Broadway, St. Louis, Missouri
48	Kansas City – Police Garage, 1325 Oak Street, Kansas City, Missouri
85	Independence – Independence City Health Department, 210 S. Main St., Independence, Missouri
86	Kansas City – U.M.K.C., 51st St. and Troost, Kansas City, Missouri
205	St. Joseph – Southwestern Telephone Company, 10th and Jules St., St. Joseph, Missouri
206	Joplin – Joplin Municipal Building, 303 E. 3rd St., Joplin, Missouri
	MONTANA
254	East Helena – City Garage, E. Helena, Montana
	NEBRASKA
200	South Sioux City – City Hall, 1617 Dakota Avenue, S. Sioux City, Nebraska
202	Omaha – Omaha-Douglas County Health Dept., S. 42nd St., Omaha, Nebraska
	NEVADA
89	Boulder City – 500 Railroad Street, Boulder City, Nevada
97	Incline Village – Sewage Pump Station No. 1, Incline V. and Highway 50, Incline Village, Nevada
	NEW HAMPSHIRE
171	Lebanon – Lebanon Fire Station, Lebanon, New Hampshire
173	Salem – Central Fire Station, Main St., Salem, New Hampshire
174	Portsmouth – Federal Building, 80 Daniel Street, Portsmouth, New Hampshire
175	Cannon Mountain – Franconia Notch State Reservation, Cannon Mountain, New Hampshire
	NEW JERSEY
1	Mays Landing – Mays Landing Meteorological Site, Mays Landing, New Jersey

Table A–1 (continued). INTERSTATE SURVEILLANCE PROJECT STATIONS

Station number	Station location
	NEW JERSEY (continued)
2	Perth Amboy – Perth Amboy Hospital, New Brunswick and Broad Head, Perth Amboy, New Jersey
3	Elizabeth – Lombard Trucking Company, North Avenue, E. Elizabeth, New Jersey
16	Penns Grove – Penns Grove Post Office, 56 W. Main St., Penns Grove, New Jersey
17	Camden – Fire Station, Camden, New Jersey
18	Trenton – Courthouse, Trenton, New Jersey
229	Metuchen – Raritan Depot No. 236, Metuchen, New Jersey
	NEW MEXICO
98	Shiprock – Fairgrounds Exhibit Hall, Route 666, Shiprock, New Mexico
99	Farmington – San Juan County Health Department, 620 S. Lake, Farmington, New Mexico
100	Dulce – Public Housing Building, Dulce, New Mexico
103	Sunland Park – Sunland Park Elementary School, Sunland Park, New Mexico
104	Anthony – Anthony Elementary School, Anthony, New Mexico
	NEW YORK
4	Staten Island – Willow Brook State School, Staten Island, New York
5	Brooklyn – Brooklyn Navy Yard, Main Guard Station, Brooklyn, New York
19	Mineola – Nassau County Government Registration Bldg., Mineola, New York
20	White Plains – Arch Stepinac High School, Mamaroneck Ave., White Plains, New York
22	Albany – 84 Holland Avenue, Albany, New York
23	Niagara Falls – City Hall Building, 7th - Main Sts., Niagara Falls, New York
24	Buffalo – Public School No. 26, 24 Harrison, Buffalo, New York
25	Binghamton – Broome County Health Dept., 62-68 Water St., Binghamton, New York
29	Petersburg – Petersburg, New York
30	Albany – Grants Department Store, Downtown Store, Albany, New York
144	Long Island – Montauk Point, Long Island, New York
178	Ticonderoga – Junion-Senior High School, Calkins Place, Ticonderoga, New York
194	Rooseveltown – U.S. Customs Building, Rooseveltown, New York
264	Cheektowaga – Municipal Building, Broadway and Union Roads, Buffalo, New York
265	Buffalo – Biological Hazard Building, 666 Elm St., Buffalo, New York
266	Niagara Falls – City Hall, 7th and Main Sts., Niagara Falls, New York
267	Niagara Falls – Niagara Falls, New York
	NORTH CAROLINA
31	Charlotte – Community Hospital, 801 S. Graham, Charlotte, North Carolina
32	Charlotte – Fire Station No. 11, 620 Moretz St., Charlotte, North Carolina
156	Spray – Center Elementary School, Virginia Avenue, Spray, North Carolina
237	Chapel Hill – Research Triangle, Chapel Hill, North Carolina
238	Chapel Hill – 311 Pittsboro, Chapel Hill, North Carolina
	NORTH DAKOTA
197	Grand Forks – Water Treatment Plant, 4th and Franklin, Grand Forks, North Dakota
198	Fargo – Civic Center, 201 N. 4th Street, Fargo, North Dakota

Table A–1 (continued). INTERSTATE SURVEILLANCE PROJECT STATIONS

Station number	Station location
	OHIO
6	Cincinnati – Central Avenue and Ann Street, Cincinnati, Ohio
36	Toledo – Fire Station No. 12, Summit and Cleveland, Toledo, Ohio
37	Columbus – Ohio Health Department, 1147 Chesapeake, Columbus, Ohio
38	Youngstown – No. 1 Fire Station, W. Federal and Belmont, Youngstown, Ohio
61	Steubenville – Fire Station, 518 South St., Steubenville, Ohio
64	Marietta – Fire House, City Building, Marietta, Ohio
66	Ironton – State Highway Building, S. 6th and Clinton, Ironton, Ohio
70	Cincinnati – 1055 Laidlaw, Cincinnati, Ohio
155	Cincinnati – Library, 8th and Vine, Cincinnati, Ohio
220	Mingo Junction – Fire Station, 501 Commercial St., Mingo Junction, Ohio
221	Steubenville – W.E. Fire House, 3700 Sunset Blvd., Steubenville, Ohio
	OKLAHOMA
207	Miami – Will Rogers Jr. High School, Goodrich Blvd. E St., Miami, Okla.
211	Sallisaw – Water Treatment Plant, Sallisaw, Oklahoma
	OREGON
69	Corvallis – Chemical Engineering Bldg., 21st and Monroe, Corvallis, Oregon
79	The Dallas – County Health Department, 400 E. 5th, The Dallas, Oregon
81	Rainier – Rainier Elementary School, 3rd and C Sts., Rainier, Oregon
82	Portland – Communicable Service, 718 S.W. Burnside, Portland, Oregon
83	Portland – Roosevelt High School, 6941 N. Central, Portland, Oregon
	PENNSYLVANIA
10	Chester – Municipal Building, 5th–Walsh St., Chester, Pennsylvania
11	Philadelphia – Health Department, 500 S. Broad St., Philadelphia, Penn.
12	Philadelphia – Health Department Lab, 1501 E. Lycoming, Philadelphia, Pennsylvania
13	Philadelphia – 2031 Race Street, Philadelphia, Pennsylvania
14	Easton – City Hall, Ferry St. and Union, Easton, Pennsylvania
15	Sharon – City Hall, Fire House, Sharon, Pennsylvania
230	Kintnersville – Palisades High School, Route 611 N., Kintnersville, Penn.
	RHODE ISLAND
186	Westerly – Police Station, 9 Union Street, Westerly, Rhode Island
187	Pawtucket – Fire Station, Roosevelt St., Pawtucket, Rhode Island
188	North Tiverton – Police Station, 232 Hilton Street, North Tiverton, Rhode Island
189	Block Island – Block Island Airport, Block Island, Rhode Island
	SOUTH CAROLINA
33	Rock Hill – Fire Station No. 1, Elizabeth Lane–E. Black St., Rock Hill, South Carolina
133	North Augusta – N. Augusta Police Department, 400 B. Vista, North Augusta, South Carolina
	SOUTH DAKOTA
199	Sioux Falls – City Hall, 224 W. 9th St., Sioux Falls, South Dakota
244	Custer – Tepee Ranger Station, Route 16, Custer, South Dakota
245	Milbank – Rea Building, E. Highway 12, Milbank, South Dakota

Table A–1 (continued). INTERSTATE SURVEILLANCE PROJECT STATIONS

Station number	Station location
	TENNESSEE
107	Volunteer Arsenal (Chattanooga) – U.S. Volunteer Army Depot, Chattanooga, Tennessee
108	Volunteer Arsenal (Chattanooga) – U.S. Volunteer Army Depot, Chattanooga, Tennessee
109	Volunteer Arsenal (Chattanooga) – U.S. Volunteer Army Depot, Chattanooga, Tennessee
110	Volunteer Arsenal (Chattanooga) – U.S. Volunteer Army Depot, Chattanooga, Tennessee
140	Chattanooga – Post Office, Georgia Avenue and Ninth, Chattanooga, Tennessee
147	Memphis – 814 Jefferson Avenue, Memphis, Tennessee
148	Bristol – Court House, Bristol, Tennessee
	TEXAS
105	El Paso – City County Health Unit, 118 W. Missouri, El Paso, Texas
115	Del Rio – 1½ Mi. NW Downtown, Del Rio Courthouse, Del Rio, Texas
116	Eagle Pass – U.S. Quarantine Station, Eagle Pass, Texas
117	Laredo – Laredo Bridge, Convent Street at International Bridge, Laredo, Texas
118	McAllen – U.S. Quarantine Station, McAllen, Texas
119	Brownsville – U.S. Quarantine Station, Brownsville, Texas
120	Austin – 820 East 53rd Street, Austin, Texas
121	Beaumont – 950 Washington, Beaumont, Texas
122	Port Arthur – 246 Lake Shore Drive, Port Arthur, Texas
123	Orange – 701 Second Street, Orange, Texas
125	Brownwood – 500 W. Commerce, Brownwood, Texas
126	Wichita Falls – Fire Station No. 10, 1215 N. Beverly, Wichita Falls, Texas
127	Sherman – City Hall, Sherman, Texas
128	Texarkana – Texas Central Fire Station, 524 W. Third, Texarkana, Texas
212	Marshall – Court House, Peter Whetstone Square, Marshall, Texas
	UTAH
262	Bullfrog – Glen Canyon, Bullfrog, Utah
	VERMONT
179	Shoreman – West of Shoreham near La. Champlain, Shoreham, Vermont
180	White River Junction – Hotel Coolidge, White River Junction, Vermont
181	Burlington – C. H. Goss Motor Company, 237 North Avenue, Burlington, Vermont
	VIRGINIA
112	Alexandria – 600 North Saint Asaph Street, Alexandria, Virginia
114	Leesburg – 18 North King Street, Leesburg, Virginia
157	Danville – Danville Community College Hill Building, Kemper Road, Danville, Virginia
158	Bristol – Bristol, Va. Fire Hall, Lee St., Bristol, Virginia
160	Bluefield – City Municipal Building, S. College Avenue and Virginia Avenue, Bluefield, Virginia
172	Luray – Park Headquarters, 5 mi. East of Luray on 211, Luray, Virginia
195	Blacksburg – Virginia Polytechnic Institute, Blacksburg, Virginia
222	Martinsville – Armory Road, Martinsville, Virginia
	WASHINGTON
72	Spokane – KXLX TV, 500 Boone, Spokane, Washington
73	Pullman – Carpenter Hall, Spokane & College Sts., Pullman, Washington

Table A–1 (continued). INTERSTATE SURVEILLANCE PROJECT STATIONS

Station number	Station location
	WASHINGTON (continued)
76	Clarkston – City Hall, 830 5th Street, Clarkston, Washington
77	Bellingham – 509 Girard Street, Bellingham, Washington
78	Seattle – 510 Smith Tower, 2nd Ave. and Yisler, Seattle, Washington
80	Longview – Department of Parks Bldg., 30 & Douglas, Longview, Washington
84	Vancouver – Federal Building, 12th and Franklin, Vancouver, Washington
	WASHINGTON, D.C.
7	Washington, D.C. – 1027 First St., N.W., Washington, D.C.
113	Washington, D.C. – 1100 Ohio Drive, Washington, D.C.
	WEST VIRGINIA
60	Wheeling – WCB City County Building, 1500 Chapline St., Wheeling, West Virginia
62	Weirton – Weirton Community Center, Main and Cove Road, Weirton, West Virginia
63	Parkersburg – Camden-Clark Hos., Ann St., Parkersburg, West Virginia
65	Huntington – Marshall University Warehouse, 5th & 19th St., Huntington, West Virginia
152	Piedmont – Fire Hall, 3rd Street, Piedmont, West Virginia
153	Keyser – Science Building, Potomac State College, Keyser, West Virginia
159	Bluefield – Federal Office Building, Federal St.-Hi Street-Scott Street, Bluefield, West Virginia
	WISCONSIN
50	Superior – Douglas County Court House, Hammond and Belknap, Superior, Wisconsin
51	Kenosha – Kenosha Technical Institute, 7th Ave. and 52nd St., Kenosha, Wisconsin
226	La Crosse – Fire Station No. 1, Monitor and Rose, La Crosse, Wisconsin
	WYOMING
252	Cheyenne – State Office Building, 22nd and Central, Cheyenne, Wyoming
253	Frannie – Highway 310 and Main Street, Frannie, Wyoming
	PUERTO RICO
255	Guaynabo – Buchanan Military Reservation, Guaynabo, Puerto Rico
256	Salinas – U.S. Army Reserve Center, Rt. 1, Salinas, Puerto Rico
257	El Yungue – Ranger Station, Fajardo, Puerto Rico
	CANADA
165	Ojibway, Ontario – Ooji-Martin Terminal Dock, Ojibway, Ontario
168	Sarnia, Ontario – Sar-Yackt Club, Ontario and Russell Sts., Sarnia, Ontario
169	Sarnia, Ontario – Sar-Res. Found Trailer, Ontario-Russell Sts., Sarnia, Ontario
170	Windsor, Ontario – Win-Highway 3 and 114, Windsor, Ontario

BLANK PAGE

APPENDIX B.

DATA SUMMARY

Table B–1. DATA SUMMARY

State/city	Year	Zinc				Annual steel				Quarterly steel				Fabric No. 1				Fabric No. 2			
		Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean
ALABAMA																					
Phenix City	1967	..	....	....	.....	..	....	....	.....	2	4	8	6	2	17.5	18.5	18.0	2	1.2	1.3	1.2
	1968	1	....	....	1.7	1	....	....	14	4	3	7	6	3	15.9	20.6	17.5	..	....	....	.....
Mobile	1967	..	....	....	.....	..	....	....	.....	2	62	96	79	2	15.3	16.9	16.1	2	1.5	2.2	1.8
	1968	1	....	....	1.0	1	....	....	41	4	47	86	59	4	17.4	21.9	19.9	..	....	....	.....
ALASKA																					
Anchorage	1967	..	....	....	.....	..	....	....	.....	..	....	....	.....	..	....	....	.....	..	....	....	.....
	1968	..	....	....	.....	..	....	....	.....	2	1	3	2	3	14.6	19.3	17.0	..	....	....	.....
Fairbanks	1967	..	....	....	.....	..	....	....	.....	..	....	....	.....	..	....	....	.....	..	....	....	.....
	1968	..	....	....	.....	..	....	....	.....	2	1	1	1	3	13.4	23.4	17.6	..	....	....	.....
ARIZONA																					
Davis Dam	1967	1	....	....	0.3	1	....	....	2	3	1	2	1	4	7.1	12.0	10.1	4	1.0	1.3	1.1
	1968	1	....	....	0.2	1	....	....	3	4	1	2	2	3	9.7	13.9	11.5	..	....	....	.....
Yuma	1967	1	....	....	0.4	1	....	....	4	4	1	2	2	4	9.0	13.5	11.3	3	1.6	2.2	1.8
	1968	1	....	....	1.6	1	....	....	3	4	1	4	2	3	12.2	16.7	14.3	..	....	....	.....
Nogales	1967	1	....	....	0.3	1	....	....	0	4	1	2	1	3	9.5	15.6	12.2	3	1.4	5.1	3.8
	1968	1	....	....	0.3	1	....	....	3	4	0	8	2	3	15.2	26.3	20.4	..	....	....	.....
Douglas	1967	1	....	....	0.5	1	....	....	7	4	0	25	7	4	9.3	14.2	11.5	4	1.4	2.6	2.0
	1968	1	....	....	12.6	1	....	....	11	4	0	42	11	3	15.8	26.4	20.0	..	....	....	.....
Clifton	1967	..	....	....	.....	..	....	....	.....	..	....	....	.....	..	....	....	.....	..	....	....	.....
	1968	..	....	....	.....	..	....	....	.....	2	8	9	8	1	13.3	13.3	.....	..	....	....	.....
Phoenix	1967	..	....	....	.....	..	....	....	.....	..	....	....	.....	..	....	....	.....	..	....	....	.....
	1968	..	....	....	.....	..	....	....	.....	1	1	1	.....	..	....	....	.....	..	....	....	.....
ARKANSAS																					
Texarkana	1967	1	....	....	0.9	1	....	....	13	3	5	13	9	3	15.9	18.1	17.1	3	1.4	3.5	2.4
	1968	1	....	....	1.1	1	....	....	8	4	3	11	7	3	17.1	21.2	19.4	..	....	....	.....
Crossett	1967	..	....	....	.....	..	....	....	.....	..	....	....	.....	..	....	....	.....	..	....	....	.....
	1968	..	....	....	.....	..	....	....	.....	2	7	16	12	1	21.2	21.2	.....	..	....	....	.....
West Memphis	1967	..	....	....	.....	..	....	....	.....	..	....	....	.....	1	15.6	15.6	.....	1	1.2	1.2	.....
	1968	1	....	....	3.8	1	....	....	15	4	5	19	10	4	16.8	21.1	18.8	..	....	....	.....
Fort Smith	1967	..	....	....	.....	..	....	....	.....	..	....	....	.....	1	13.8	13.8	.....	1	0.5	0.5	.....
	1968	..	....	....	.....	1	....	....	4	4	2	8	4	4	15.8	18.6	17.2	..	....	....	.....

Table B–1 (continued). DATA SUMMARY

State/city	Year	Fabric No. 3				Fabric No. 4				Fabric No. 5				Fabric No. 6				Fabric No. 7			
		Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean
ALABAMA																					
Phenix City	1967	2	16.2	16.3	16.2	1	26.4	26.4	-----	--	----	----	-----	--	----	----	-----	--	----	----	-----
	1968	2	21.8	22.2	22.0	--	----	----	-----	3	9.8	12.5	10.7	3	4.7	8.5	6.7	3	8.7	11.6	10.2
Mobile	1967	2	22.7	23.6	23.2	2	21.8	26.8	24.3	--	----	----	-----	--	----	----	-----	--	----	----	-----
	1968	3	21.6	25.5	23.9	--	----	----	-----	4	10.0	15.6	12.4	4	6.1	8.6	7.5	4	4.9	9.3	7.2
ALASKA																					
Anchorage	1967	--	----	----	-----	--	----	----	-----	--	----	----	-----	--	----	----	-----	--	----	----	-----
	1968	3	20.8	36.0	26.8	--	----	----	-----	2	6.5	7.3	6.9	3	8.1	9.7	9.2	2	7.7	11.0	9.4
Fairbanks	1967	--	----	----	-----	--	----	----	-----	--	----	----	-----	--	----	----	-----	--	----	----	-----
	1968	3	17.3	28.1	21.7	--	----	----	-----	2	3.6	6.6	5.1	3	9.3	10.3	9.7	2	5.6	11.6	8.6
ARIZONA																					
Davis Dam	1967	4	8.2	24.0	14.2	3	16.2	23.2	19.6	--	----	----	-----	--	----	----	-----	--	----	----	-----
	1968	2	13.8	14.9	14.4	--	----	----	-----	3	9.6	15.9	13.0	3	3.7	4.1	3.9	4	2.5	15.5	7.1
Yuma	1967	3	14.9	16.4	15.5	3	13.5	18.1	16.1	--	----	----	-----	--	----	----	-----	--	----	----	-----
	1968	3	16.4	18.8	17.8	--	----	----	-----	3	12.3	14.1	13.1	3	5.4	9.2	6.7	3	4.4	10.8	7.3
Nogales	1967	4	11.8	21.3	15.6	3	12.9	19.9	15.7	--	----	----	-----	--	----	----	-----	--	----	----	-----
	1968	2	22.3	22.9	22.6	--	----	----	-----	2	7.4	9.9	8.6	3	10.1	13.4	11.5	2	6.0	18.9	12.4
Douglas	1967	4	11.2	14.1	12.0	3	8.8	19.2	14.0	--	----	----	-----	--	----	----	-----	--	----	----	-----
	1968	4	16.2	23.8	18.7	--	----	----	-----	2	8.4	12.9	10.6	4	7.2	12.8	9.8	4	7.0	12.0	8.7
Clifton	1967	--	----	----	-----	--	----	----	-----	--	----	----	-----	--	----	----	-----	--	----	----	-----
	1968	1	14.5	14.5	-----	--	----	----	-----	1	12.2	12.2	-----	1	7.4	7.4	-----	1	5.0	5.0	-----
Phoenix	1967	--	----	----	-----	--	----	----	-----	--	----	----	-----	--	----	----	-----	--	----	----	-----
	1968	--	----	----	-----	--	----	----	-----	--	----	----	-----	--	----	----	-----	--	----	----	-----
ARKANSAS																					
Texarkana	1967	3	16.3	21.1	18.2	2	24.2	26.9	25.6	--	----	----	-----	--	----	----	-----	--	----	----	-----
	1968	3	20.4	22.7	21.9	--	----	----	-----	2	11.2	15.5	13.4	3	8.5	10.8	9.4	3	5.4	9.2	7.5
Crossett	1967	--	----	----	-----	--	----	----	-----	--	----	----	-----	--	----	----	-----	--	----	----	-----
	1968	2	21.0	23.4	22.2	--	----	----	-----	2	6.4	15.9	11.2	1	5.7	5.7	-----	1	9.1	9.1	-----
West Memphis	1967	1	15.4	15.4	-----	1	13.7	13.7	-----	--	----	----	-----	--	----	----	-----	--	----	----	-----
	1968	3	22.2	24.5	23.3	--	----	----	-----	4	7.8	16.0	11.9	4	7.3	9.2	8.1	4	6.8	8.6	7.6
Fort Smith	1967	1	10.4	10.4	-----	1	13.2	13.2	-----	--	----	----	-----	--	----	----	-----	--	----	----	-----
	1968	4	14.7	20.3	18.6	--	----	----	-----	3	9.0	14.6	11.7	4	5.9	11.1	7.6	4	4.0	9.8	7.8

Table B–1 (continued). DATA SUMMARY

State/city	Year	Fabric No. 8				Fabric No. 9				Quarterly nylon				Monthly nylon				Silver tarnishing			
		Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean
ALABAMA																					
Phenix City	1967	..	....	....	.....	..	....	....	.....	2	0	5	2.5	7	0	0	0	7	31	58	43
	1968	3	4.1	10.0	7.0	3	12.4	29.3	22.0	4	0	0	0	12	0	4	0.3	12	34	69	47
Mobile	1967	4	5.4	9.8	7.9	4	16.8	....	.....	1	0	0	.....	5	0	0	.....	5	56	83	.....
	1968	4	5.4	9.8	7.9	4	16.8	33.3	26.0	4	0	2	0.5	12	0	0	0	12	49	83	71
ALASKA																					
Anchorage	1967	..	....	....	.....	..	....	....	.....	..	....	....	.....	...	....	....	.....	...	....	....	.....
	1968	3	4.1	8.9	6.8	3	9.8	26.9	19.5	3	0	0	0	7	0	0	0	7	4	20	10
Fairbanks	1967	..	....	....	.....	..	....	....	.....	..	....	....	.....	...	....	....	.....	...	....	....	.....
	1968	2	6.2	6.2	6.2	3	17.2	24.0	20.6	2	0	0	0	7	0	0	0	7	6	21	12
ARIZONA																					
Davis Dam	1967	..	....	....	.....	..	....	....	.....	4	0	0	0	11	0	0	0	12	16	96	57
	1968	3	1.4	14.3	7.6	3	5.4	11.8	7.7	3	0	0	0	12	0	0	0	12	11	86	52
Yuma	1967	..	....	....	.....	..	....	....	.....	4	0	0	0	12	0	0	0	12	12	92	38
	1968	3	3.5	8.9	8.4	3	7.9	15.1	11.4	4	0	0	0	11	0	0	0	12	11	83	32
Nogales	1967	..	....	....	.....	..	....	....	.....	4	0	0	0	9	0	0	0	10	11	30	19
	1968	2	8.5	15.3	11.9	3	17.5	23.6	21.3	4	0	0	0	11	0	0	0	12	12	29	21
Douglas	1967	..	....	....	.....	..	....	....	.....	4	0	0	0	11	0	0	0	12	9	27	15
	1968	4	4.7	6.5	5.6	4	13.6	22.9	16.3	4	0	0	0	12	0	0	0	12	8	41	19
Clifton	1967	..	....	....	.....	..	....	....	.....	..	....	....	.....	...	....	....	.....	...	....	....	.....
	1968	1	3.1	3.1	.....	1	8.0	8.0	.....	1	0	0	.....	5	0	0	.....	5	9	83	.....
Phoenix	1967	..	....	....	.....	..	....	....	.....	..	....	....	.....	...	....	....	.....	...	....	....	.....
	1968	..	....	....	.....	1	18.6	18.6	.....	1	0	0	.....	3	0	0	.....	3	15	38	.....
ARKANSAS																					
Texarkana	1967	..	....	....	.....	..	....	....	.....	3	0	0	0	9	0	0	0	9	47	90	71
	1968	3	5.6	7.2	6.5	2	19.7	26.8	23.2	2	0	4	2.0	10	0	0	0	12	47	89	64
Crossett	1967	..	....	....	.....	..	....	....	.....	..	....	....	.....	2	0	6	.....	1	7	7	.....
	1968	1	6.2	6.2	.....	2	21.7	37.0	29.4	2	0	0	0	5	0	0	.....	6	66	93	81
West Memphis	1967	..	....	....	.....	..	....	....	.....	..	....	....	.....	2	0	0	.....	2	54	67	.....
	1968	4	4.6	10.3	8.0	4	16.5	29.6	22.6	4	0	1	0.2	12	0	0	0	12	18	58	39
Fort Smith	1967	..	....	....	.....	..	....	....	.....	..	....	....	.....	2	0	0	.....	2	45	46	.....
	1968	4	4.9	8.9	6.4	3	18.5	27.1	22.9	4	0	1	0.2	11	0	0	0	11	16	56	32

Table B–1 (continued). DATA SUMMARY

State/city	Year	Lead perioxide candle				Lead plates				Dustfall				Sticky paper				Rubber cracking			
		Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean
ALABAMA																					
Phenix City	1967	7	0.0	0.1	0.0	...	..	...	..	7	2.1	3.1	2.5	7	6	20	12	30	0	.383	.076
	1968	12	0.0	0.3	0.3	12	0	2	1	12	1.8	5.1	2.7	12	6	39	26	51	0	.280	.089
Mobile	1967	5	0.2	0.5	...	...	..	...	..	5	3.7	12.1	...	6	6	36	12	23	0	.249	.....
	1968	12	0.0	0.6	0.3	12	0	6	2	12	3.4	12.3	7.3	12	1	49	22	52	0	.230	..063
ALASKA																					
Anchorage	1967	...	...	...	...	...	..	...	..	...	...	....	...	...	..	...	...	...	..	....	.....
	1968	7	0.0	0.1	0.1	7	0	1	0	7	0.9	4.7	3.1	5	5	29	...	27	0	0	0
Fairbanks	1967	...	...	...	...	...	..	...	..	...	...	....	...	...	..	...	...	...	..	....	.....
	1968	7	0.0	0.1	0.0	7	0	2	1	3	3.7	5.1	...	6	11	54	27	25	0	.280	.....
ARIZONA																					
Davis Dam	1967	12	0.0	0.1	0.1	...	..	...	..	12	0.2	2.4	0.9	11	3	34	21	52	0	.570	.280
	1968	12	0.0	0.1	0.0	12	0	2	1	11	0.4	2.6	0.8	11	8	66	26	47	0	.527	.210
Yuma	1967	12	0.0	0.1	0.0	...	..	...	..	11	1.3	13.5	3.6	12	14	78	38	50	0	.481	.158
	1968	12	0.0	0.1	0.0	12	0	1	0	12	1.2	4.4	2.6	11	14	64	36	48	0	.464	.131
Nogales	1967	9	0.0	0.4	0.1	...	..	...	..	7	1.1	8.7	4.6	10	13	60	36	32	0	.491	.136
	1968	11	0.0	0.3	0.1	12	0	2	1	13	1.4	8.2	4.2	12	19	62	42	52	0	.411	.120
Douglas	1967	12	0.0	1.4	0.6	...	..	...	..	12	2.5	12.5	5.6	12	27	74	51	50	0	.469	.167
	1968	12	0.0	1.9	0.8	10	0	11	5	12	1.4	10.6	6.0	12	34	79	54	50	0	.429	.128
Clifton	1967	...	...	...	...	...	..	...	..	...	...	....	...	...	..	...	...	...	..	....	.....
	1968	6	0.1	1.3	...	5	6	6	..	5	0.5	1.7	...	5	10	28	...	21	0	.351	.....
Phoenix	1967	...	...	...	...	...	..	...	..	...	...	....	...	...	..	...	...	...	..	....	.....
	1968	3	0.0	0.3	...	4	0	2	..	3	1.0	4.1	...	3	17	20	...	12	0	.197	.....
ARKANSAS																					
Texarkana	1967	9	0.0	0.2	0.1	...	..	...	..	9	1.7	3.7	2.5	9	6	34	16	38	0	.403	.137
	1968	12	0.0	0.2	0.1	12	0	2	1	12	1.7	3.6	2.7	11	7	47	21	52	0	.353	.099
Crossett	1967	1	2.0	2.0	...	...	..	...	..	2	1.0	3.7	...	1	7	7	...	7	0	0	.....
	1968	5	0.0	0.1	...	7	0	3	1	6	4.7	11.1	7.6	5	8	29	...	27	0	.212	.040
West Memphis	1967	2	0.3	0.4	...	...	..	...	..	2	6.1	6.5	...	3	15	70	...	9	0	0	.....
	1968	12	0.0	0.5	0.1	12	0	3	1	12	2.5	7.7	5.4	11	3	48	23	50	0	.301	.097
Fort Smith	1967	2	0.0	0.1	...	...	..	...	..	2	4.2	4.7	...	3	17	70	...	10	0	.280	.....
	1968	12	0.0	0.1	0.1	10	0	1	1	11	2.3	10.4	4.8	10	1	42	20	45	0	.335	.095

Table B–1 (continued). DATA SUMMARY

State/city	Year	Zinc				Annual steel				Quarterly steel				Fabric No. 1				Fabric No. 2			
		Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean
CALIFORNIA																					
Needles	1967	1	....	....	0.3	1	....	....	1	4	1	1	1	4	8.0	11.6	10.2	4	1.1	2.4	2.0
	1968	1	....	....	0.2	1	....	....	1	4	0	1	1	3	11.6	14.1	12.7	..	....	....	.....
Calexico	1967	1	....	....	0.5	1	....	....	5	2	2	6	4	2	11.9	14.0	13.0	2	3.3	4.9	4.1
	1968	1	....	....	0.4	1	....	....	4	4	2	10	7	1	14.9	14.9	.....	..	....	....	.....
San Ysidro	1967	1	....	....	0.9	1	....	....	33	3	21	48	34	3	14.7	18.1	16.4	3	0.8	2.3	1.5
	1968	1	....	....	0.8	1	....	....	28	3	26	43	35	4	17.4	20.4	19.0	..	....	....	.....
Oakland	1967	1	....	....	0.9	1	....	....	33	4	24	56	41	4	12.4	17.6	15.6	4	1.7	3.8	2.8
	1968	1	....	....	0.8	1	....	....	35	3	17	32	26	3	15.4	19.9	17.6	..	....	....	.....
South Tahoe	1967	1	....	....	0.6	1	....	....	1	4	0	2	1	3	10.0	14.3	12.3	4	0.8	3.6	2.1
	1968	..	....	....	.....	1	....	....	0	4	0	1	1	3	15.2	16.6	15.9	..	....	....	.....
Los Angeles (239)	1967	..	....	....	.....	..	....	....	.....	..	....	....	.....	..	....	....	.....	..	....	....	.....
	1968	..	....	....	.....	1	....	....	17	2	11	23	17	2	18.8	21.0	19.9	..	....	....	.....
Los Angeles (240)	1967	..	....	....	.....	..	....	....	.....	..	....	....	.....	..	....	....	.....	..	....	....	.....
	1968	1	....	....	3.5	1	....	....	18	3	16	27	24	2	23.2	23.6	23.4	..	....	....	.....
COLORADO																					
Denver	1968	1	....	....	0.5	1	....	....	2	3	2	6	4	3	14.8	20.0	17.9	..	....	....	.....
CONNECTICUT																					
Greenwich	1967	1	....	....	2.4	1	....	....	54	4	64	81	71	4	12.8	17.3	15.8	4	2.5	5.3	3.6
	1967	1	....	....	2.4	1	....	....	54	4	64	81	71	4	12.8	17.3	15.8	4	2.5	5.3	3.6
	1968	1	....	....	2.2	1	....	....	53	4	69	83	74	4	16.6	20.5	18.6	..	....	....	.....
Thompsonville	1967	..	....	....	.....	..	....	....	.....	..	....	....	.....	1	15.8	15.8	.....	1	1.8	1.8	.....
	1968	1	....	....	4.6	1	....	....	48	4	64	78	71	4	12.3	19.6	17.0	..	....	....	.....
Hartford	1967	..	....	....	.....	..	....	....	.....	..	....	....	.....	1	14.9	14.9	.....	1	3.6	3.6	.....
	1968	1	....	....	2.6	1	....	....	42	4	55	71	62	4	16.1	21.8	18.6	..	....	....	.....
Pawcatuck	1967	..	....	....	.....	..	....	....	.....	..	....	....	.....	..	....	....	.....	..	....	....	.....
	1968	1	....	....	2.6	1	....	....	54	3	65	80	70	3	17.8	22.7	19.6	..	....	....	.....
Bridgeport	1967	..	....	....	.....	..	....	....	.....	..	....	....	.....	..	....	....	.....	..	....	....	.....
	1968	..	....	....	.....	..	....	....	.....	2	62	105	84	3	18.0	22.2	20.7	..	....	....	.....
DELAWARE																					
Wilmington	1967	1	....	....	3.3	1	....	....	47	4	57	75	68	4	13.0	19.2	15.8	4	1.9	6.2	3.7
	1968	1	....	....	5.6	1	....	....	38	2	56	112	84	4	14.9	23.4	19.4	..	....	....	.....
Claymont	1967	1	....	....	3.4	1	....	....	56	4	73	100	87	4	12.7	18.1	15.1	4	1.4	2.9	2.2
	1968	1	....	....	2.6	1	....	....	56	4	71	96	80	4	14.2	20.9	17.6	..	....	....	.....

Table B–1 (continued). DATA SUMMARY

State/city	Year	Fabric No. 3				Fabric No. 4				Fabric No. 5				Fabric No. 6				Fabric No. 7			
		Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean
CALIFORNIA																					
Needles	1967	4	10.0	16.4	13.9	4	12.5	21.5	16.2	--	----	----	-----	--	----	----	-----	--	----	----	-----
	1968	3	17.5	21.4	[illegible]	--	----	----	-----	3	9.1	15.4	12.8	1	11.6	11.6	-----	1	10.6	10.6	-----
Calexico	1967	2	18.5	18.8	18.6	2	11.2	15.1	13.2	--	----	----	-----	--	----	----	-----	--	----	----	-----
	1968	2	20.3	25.3	22.8	--	----	----	-----	1	9.0	9.0	-----	3	8.9	13.3	10.4	2	3.2	13.1	8.2
San Ysidro	1967	3	20.0	21.9	20.7	2	24.4	27.3	25.8	--	----	----	-----	--	----	----	-----	--	----	----	-----
	1968	4	23.5	31.9	26.7	--	----	----	-----	4	10.3	19.1	14.7	4	6.0	8.9	6.8	4	4.4	8.9	6.5
Oakland	1967	4	22.0	29.8	25.1	3	10.3	16.7	13.9	--	----	----	-----	--	----	----	-----	--	----	----	-----
	1968	3	28.8	34.8	32.0	--	----	----	-----	3	6.8	7.4	7.1	3	5.7	9.1	7.0	3	5.0	8.8	7.0
South Tahoe	1967	4	8.1	14.0	11.0	3	11.3	16.2	13.0	--	----	----	-----	--	----	----	-----	--	----	----	-----
	1968	4	10.8	12.8	12.2	--	----	----	-----	4	01.2	11.7	10.9	4	5.4	9.9	6.8	4	4.2	5.8	5.1
Los Angeles (239)	1967	--	----	----	-----	--	----	----	-----	--	----	----	-----	--	----	----	-----	--	----	----	-----
	1968	2	52.3	62.8	57.6	--	----	----	-----	2	7.4	21.1	14.2	2	8.8	9.0	8.9	2	5.7	7.1	6.4
Los Angeles (240)	1967	--	----	----	-----	--	----	----	-----	--	----	----	-----	--	----	----	-----	--	----	----	-----
	1968	2	52.2	55.5	53.8	--	----	----	-----	2	9.9	16.4	13.2	2	7.8	15.3	11.6	2	6.8	13.7	10.2
COLORADO																					
Denver	1967	4	17.0	23.0	20.6	4	7.8	15.2	11.0	--	----	----	-----	--	----	----	-----	--	----	----	-----
	1968	4	24.1	30.7	26.5	--	----	----	-----	3	4.3	9.0	6.3	3	9.1	11.2	9.9	4	7.1	16.3	12.0
CONNECTICUT																					
Greenwich	1967	4	28.9	40.3	35.5	3	10.7	28.9	20.6	--	----	----	-----	--	----	----	-----	--	----	----	-----
	1968	4	39.8	43.7	42.0	--	----	----	-----	4	8.0	14.9	11.0	4	5.0	10.0	8.1	4	3.6	12.7	8.0
Thompsonville	1967	1	32.5	32.5	-----	1	17.6	17.6	-----	--	----	----	-----	--	----	----	-----	--	----	----	-----
	1968	3	31.1	40.3	35.2	--	----	----	-----	3	7.5	15.3	11.9	4	4.8	11.8	8.4	4	3.1	12.9	7.2
Hartford	1967	1	38.9	38.9	-----	1	11.8	11.8	-----	--	----	----	-----	--	----	----	-----	--	----	----	-----
	1968	3	41.7	49.2	44.9	--	----	----	-----	4	5.0	12.8	8.3	4	8.9	13.2	11.4	4	5.3	17.1	11.9
Pawcatuck	1967	--	----	----	-----	--	----	----	-----	--	----	----	-----	--	----	----	-----	--	----	----	-----
	1968	3	34.5	37.3	36.0	--	----	----	-----	3	9.7	18.1	12.6	3	6.4	10.2	8.7	3	3.7	9.8	7.1
Bridgeport	1967	--	----	----	-----	--	----	----	-----	--	----	----	-----	--	----	----	-----	--	----	----	-----
	1968	3	36.5	44.5	41.2	--	----	----	-----	2	7.6	13.3	10.4	3	8.2	10.4	9.2	2	6.0	8.6	7.3
DELAWARE																					
Wilmington	1967	4	26.0	37.3	32.6	4	8.7	25.8	16.1	--	----	----	-----	--	----	----	-----	--	----	----	-----
	1968	4	37.2	39.2	38.3	--	----	----	-----	4	5.5	15.6	9.6	4	7.1	11.7	8.9	4	7.2	11.2	8.8
Claymont	1967	4	13.6	32.6	25.3	3	11.7	30.6	19.6	--	----	----	-----	--	----	----	-----	--	----	----	-----
	1968	4	32.9	36.1	34.3	--	----	----	-----	3	8.0	13.8	10.4	4	5.7	8.9	7.0	4	2.7	10.4	6.9

Table B–1 (continued). DATA SUMMARY

State/city	Year	Fabric No. 8				Fabric No. 9				Quarterly nylon				Monthly nylon				Silver tarnishing			
		Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean
CALIFORNIA																					
Needles	1967	..	....	....	....	..	....	....	....	4	0	0	0	11	0	0	0	12	8	30	15
	1968	2	5.3	8.5	6.9	3	7.2	16.6	10.3	4	0	3	0.8	12	0	0	0	12	5	39	15
Calexico	1967	..	....	....	....	..	....	....	....	4	0	0	0	12	0	0	0	12	44	91	68
	1968	2	9.6	9.8	9.7	1	13.2	13.2	....	4	0	0	0	12	0	0	0	12	34	96	70
San Ysidro	1967	..	....	....	....	..	....	....	....	3	0	0	0	10	0	1	0.1	12	31	55	42
	1968	4	7.2	15.8	11.7	4	17.0	24.3	21.4	3	0	0	0	12	0	0	0	12	27	60	46
Oakland	1967	..	....	....	....	..	....	....	....	4	0	0	0	12	0	0	0	12	21	76	49
	1968	3	5.1	6.4	5.9	3	17.3	20.3	18.5	4	0	0	0	12	0	0	0	11	39	66	51
South Tahoe	1967	..	....	....	....	..	....	....	....	3	0	0	0	10	0	2	0.2	7	1	55	18
	1968	3	4.7	7.9	5.9	3	6.8	31.0	16.2	3	0	0	0	12	0	0	0	12	1	12	5
Los Angeles	1967	..	....	....	....	..	....	....	....	..	....	....	....	...	....	....	....	...	....	....	....
(239)	1968	2	13.1	13.6	13.4	2	27.6	39.7	33.6	3	0	0	0	9	0	3	0.3	9	52	88	62
Los Angeles	1967	..	....	....	....	..	....	....	....	..	....	....	....	...	....	....	....	...	....	....	....
(240)	1968	2	10.6	16.4	13.5	2	36.0	38.9	37.4	3	0	1	0.3	9	0	0	0	9	61	76	66
COLORADO																					
Denver	1967	..	....	....	....	..	....	....	....	2	0	0	0	11	0	0	0	10	13	46	27
	1968	4	6.0	9.8	7.6	4	13.0	21.5	16.6	3	0	0	0	12	0	1	0.1	6	19	48	32
CONNECTICUT																					
Greenwich	1967	..	....	....	....	..	....	....	....	4	1	4	2.5	12	0	1	0.2	12	43	64	56
	1968	4	6.3	15.4	10.3	4	15.1	33.9	22.5	4	0	17	5.0	12	0	3	1.0	12	37	68	52
Thompsonville	1967	..	....	....	....	..	....	....	....	1	8	8	....	3	2	8	....	2	32	53	....
	1968	2	8.1	10.5	9.3	3	12.3	33.2	23.9	4	0	17	5.2	12	0	6	2.0	12	30	70	45
Hartford	1967	..	....	....	....	..	....	....	....	..	....	....	....	1	2	2	....	2	35	55	....
	1968	4	6.4	9.8	8.6	4	16.7	33.2	23.8	4	5	31	15.0	12	0	10	3.0	12	36	56	46
Pawcatuck	1967	..	....	....	....	..	....	....	....	..	....	....	....	1	2	2	....	...	....	....	....
	1968	3	9.5	18.2	14.7	3	16.8	35.3	23.7	3	0	7	2.3	11	0	1	0.1	12	24	61	39
Bridgeport	1967	..	....	....	....	..	....	....	....	..	....	....	....	3	0	2	....	...	....	....	....
	1968	3	4.5	13.7	9.8	3	17.5	29.7	24.6	3	16	57	30.0	8	0	49	24.0	7	39	85	56
DELAWARE																					
Wilmington	1967	..	....	....	....	..	....	....	....	2	31	35	33.0	12	0	28	8.7	11	65	89	80
	1968	4	4.8	7.3	6.0	4	12.5	31.2	22.8	4	12	86	58.7	12	1	78	20.0	12	65	83	74
Claymont	1967	..	....	....	....	..	....	....	....	4	0	14	8.8	12	0	1	0.3	12	37	92	67
	1968	4	5.4	10.1	7.6	4	13.1	31.8	22.6	3	0	1	0.3	12	0	0	0	12	60	89	77

Table B–1 (continued). DATA SUMMARY

State/city	Year	Lead peroxide candle				Lead plates				Dustfall				Sticky paper				Rubber cracking			
		Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean
CALIFORNIA																					
Needles	1967	10	0.0	0.1	0.0	...	...	...	...	11	0.8	2.5	1.8	12	12	47	33	52	0	.420	.157
	1968	11	0.0	0.1	0.1	11	0	0	0	12	1.1	4.7	2.0	11	27	73	41	40	0	.406	.126
Calexico	1967	12	0.0	0.2	0.1	...	...	...	...	11	0.8	14.0	6.3	12	25	70	49	51	0	.391	.146
	1968	12	0.0	0.2	0.1	12	0	2	0	12	2.5	8.4	5.4	10	28	77	53	46	0	.456	.130
San Ysidro	1967	12	0.0	0.4	0.1	...	...	...	...	10	0.4	4.2	1.4	12	11	49	22	45	0	.683	.337
	1968	12	0.0	0.5	0.1	11	0	2	0	11	1.0	4.1	2.6	11	17	44	32	54	0	.612	.316
Oakland	1967	12	0.0	0.6	0.3	...	...	...	...	12	2.4	6.2	3.9	12	6	38	21	51	0	.255	.035
	1968	12	0.0	0.5	0.2	11	0	2	1	10	2.6	3.9	3.2	12	1	41	19	47	0	.229	.030
South Tahoe	1967	10	0.0	0.1	0.0	...	...	...	...	8	0.7	2.7	1.7	12	4	25	12	42	0	.542	.164
	1968	11	0.0	0.1	0.0	11	0	0	0	12	0.4	2.5	1.4	11	7	42	23	49	0	.383	.076
Los Angeles (239)	1967	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	1968	8	0.0	0.3	0.1	9	0	2	1	9	2.5	4.1	3.0	9	6	61	26	38	0	.355	.201
Los Angeles (240)	1967	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	1968	8	0.0	0.4	0.2	9	1	3	2	9	3.7	5.2	4.4	9	14	60	34	39	0	.457	.194
COLORADO																					
Denver	1967	12	0.0	0.5	0.3	...	...	...	...	12	5.4	20.3	12.4	12	34	80	59	50	0	.416	.082
	1968	12	0.0	0.6	0.2	8	0	3	2	11	6.1	34.0	14.6	11	30	80	62	52	0	.280	.070
CONNECTICUT																					
Greenwich	1967	12	0.5	2.0	1.0	...	...	...	...	12	2.2	7.9	4.4	12	4	43	21	49	0	.297	.070
	1968	12	0.1	2.0	0.8	11	2	14	6	12	2.2	6.8	4.0	12	2	47	28	52	0	.265	.055
Thompsonville	1967	3	0.7	1.3	...	...	...	...	...	3	2.1	3.6	...	3	10	14	...	11	0	.508	.078
	1968	10	0.4	2.2	0.9	12	3	15	6	12	1.7	5.5	3.0	6	4	48	22	32	0	.508	.078
Hartford	1967	2	1.3	2.3	...	...	...	...	...	2	4.8	9.8	...	2	16	51	...	6	0	.033	...
	1968	11	0.5	3.2	1.5	9	6	19	12	12	3.6	14.0	7.8	12	19	72	45	52	0	.197	.058
Pawcatuck	1967	1	0.6	0.6	...	...	...	...	...	1	1.1	1.1	...	2	14	18	...	5	0	.106	...
	1968	12	0.2	1.3	0.7	9	2	8	5	11	0.3	1.0	1.1	11	10	51	26	52	0	.464	.123
Bridgeport	1967	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	1968	6	1.0	2.9	1.6	6	0	18	10	7	1.1	10.6	5.9	7	30	72	56	30	0	.244	.080
DELAWARE																					
Wilmington	1967	12	0.8	3.0	1.8	...	...	...	...	12	7.4	20.8	11.9	9	19	74	56	44	0	.318	.062
	1968	12	0.7	3.3	1.6	12	5	23	12	12	5.3	24.8	12.8	9	21	67	52	40	0	.207	.049
Claymont	1967	12	0.7	2.3	1.3	...	...	...	...	12	1.7	8.4	4.4	12	7	47	24	49	0	.435	.098
	1968	12	0.2	2.6	1.2	12	3	17	9	12	2.0	6.6	3.9	12	6	53	29	50	0	.221	.075

Table B–1 (continued). DATA SUMMARY

State/city	Year	Zinc				Annual steel				Quarterly steel				Fabric No. 1				Fabric No. 2			
		Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean
FLORIDA																					
Tampa	1967	1	....	....	2.0	1	....	....	64	4	79	114	97	4	17.3	21.9	19.6	4	0.8	2.0	1.3
	1968	1	....	....	1.4	1	....	....	54	4	72	87	80	4	22.5	26.4	24.6	..	....	....	.....
Oneca	1967	1	....	....	5.1	1	....	....	27	3	26	39	33	3	14.8	18.8	17.4	3	0.9	1.1	1.0
	1968	1	....	....	1.3	1	....	....	31	3	28	46	38	4	17.7	23.4	20.0	..	....	....	.....
Broward	1967	1	....	....	2.5	1	....	....	21	3	30	76	58	3	14.4	16.9	15.4	3	0.9	2.5	1.7
	1968	1	....	....	1.8	1	....	....	16	4	28	115	57	2	14.4	19.0	16.7	..	....	....	.....
Pensacola	1967	..	....	....	.....	..	....	....	.....	2	37	61	49	2	17.6	19.3	18.4	2	1.7	4.6	3.2
	1968	1	....	....	4.9	1	....	....	28	3	18	53	37	3	19.8	22.9	21.7	..	....	....	.....
Fernandina Beach (232)	1967	..	....	....	.....	..	....	....	.....	..	....	....	.....	..	....	....	.....	..	....	....	.....
	1968	1	....	....	2.1	1	....	....	38	3	57	73	63	3	16.7	21.1	19.3	..	....	....	.....
Fernandina Beach (231)	1967	..	....	....	.....	..	....	....	.....	..	....	....	.....	..	....	....	.....	..	....	....	.....
	1968	..	....	....	.....	..	....	....	.....	2	65	89	77	3	18.0	22.1	20.2	..	....	....	.....
Gainesville	1967	..	....	....	.....	..	....	....	.....	..	....	....	.....	..	....	....	.....	..	....	....	.....
	1968	..	....	....	.....	1	....	....	20	2	16	23	20	3	15.8	21.3	19.4	..	....	....	.....
GEORGIA																					
Augusta	1967	1	....	....	0.9	1	....	....	24	3	14	27	20	3	13.4	17.3	15.8	3	1.0	2.7	1.6
	1968	1	....	....	1.2	1	....	....	19	4	12	19	15	4	16.4	20.6	18.8	..	....	....	.....
Savannah	1967	1	....	....	1.9	1	....	....	66	3	70	103	88	3	17.6	22.5	19.8	3	0.7	2.6	1.4
	1968	1	....	....	2.3	1	....	....	41	4	53	66	58	4	20.1	23.2	21.7	..	....	....	.....
St. Marys	1967	..	....	....	.....	1	....	....	64	3	68	90	80	3	14.4	18.8	17.3	3	0.9	1.1	1.0
	1968	1	....	....	6.3	..	....	....	.....	4	66	132	91	3	18.3	22.4	20.5	..	....	....	.....
Rossville	1967	..	....	....	.....	..	....	....	.....	2	0	29	15	2	19.8	26.5	23.2	2	1.5	4.2	2.8
	1968	1	....	....	2.5	1	....	....	24	4	16	29	21	4	16.4	23.2	20.3	..	....	....	.....
Columbus	1967	..	....	....	.....	..	....	....	.....	2	4	6	5	1	18.0	18.0	.....	1	1.2	1.2	.....
	1968	..	....	....	.....	1	....	....	12	3	5	16	10	2	15.8	19.1	17.4	..	....	....	.....
HAWAII																					
Honolulu	1967	..	....	....	.....	..	....	....	.....	..	....	....	.....	..	....	....	.....	..	....	....	.....
	1968	1	....	....	0.8	1	....	....	28	3	34	61	45	4	15.4	21.6	17.0	..	....	....	.....
Hilo	1967	..	....	....	.....	..	....	....	.....	..	....	....	.....	..	....	....	.....	..	....	....	.....
	1968	..	....	....	.....	..	....	....	.....	3	1	4	3	4	12.9	21.0	16.1	..	....	....	.....
IDAHO																					
Coeur d'Alene	1967	1	....	....	4.0	1	....	....	10	4	1	9	4	4	11.7	14.7	13.0	4	1.2	5.2	2.4
	1968	1	....	....	0.8	1	....	....	16	4	3	15	10	1	16.7	16.7	.....	..	....	....	.....

Table B–1 (continued). DATA SUMMARY

State/city	Year	Fabric No. 3				Fabric No. 4				Fabric No. 5				Fabric No. 6				Fabric No. 7			
		Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean
FLORIDA																					
Tampa	1967	4	12.2	20.1	16.8	4	20.8	24.5	22.9	..	....	....	....	..	....	....	....	..	....	....	....
	1968	4	21.4	26.8	24.4	..	....	....	....	4	10.1	15.1	12.6	4	5.8	9.6	7.8	4	3.5	13.4	8.6
Oneca	1967	3	13.7	23.2	18.6	2	22.1	27.5	24.8	..	....	....	....	..	....	....	....	..	....	....	....
	1968	3	16.9	27.2	21.8	..	....	....	....	3	11.4	15.8	13.0	4	4.1	5.8	5.0	4	1.9	7.1	4.3
Broward	1967	3	12.9	18.2	14.8	2	18.8	22.3	20.6	..	....	....	....	..	....	....	....	..	....	....	....
	1968	3	7.1	24.3	17.6	..	....	....	....	2	4.9	10.8	7.8	2	4.9	9.2	7.0	3	3.7	7.6	5.1
Pensacola	1967	2	23.9	24.4	24.2	2	26.4	27.4	26.9	..	....	....	....	..	....	....	....	..	....	....	....
	1968	3	23.2	26.3	24.6	..	....	....	....	3	10.6	14.4	12.8	2	6.3	7.5	6.9	3	6.9	11.2	9.5
Fernandina Beach (231)	1967	..	....	....	....	..	....	....	....	..	....	....	....	..	....	....	....	..	....	....	....
	1968	3	21.9	23.2	22.7	..	....	....	....	3	13.9	16.6	15.4	3	4.4	6.6	5.2	2	5.0	5.4	5.2
Fernandina Beach (232)	1967	..	....	....	....	..	....	....	....	..	....	....	....	..	....	....	....	..	....	....	....
	1968	3	20.7	23.3	21.9	..	....	....	....	3	13.5	15.9	14.5	3	4.9	7.9	6.8	3	2.8	6.5	4.3
Gainesville	1967	..	....	....	....	..	....	....	....	..	....	....	....	..	....	....	....	..	....	....	....
	1968	3	19.0	26.0	22.0	..	....	....	....	3	11.8	17.6	14.6	3	3.5	8.2	5.6	3	1.9	6.5	3.9
GEORGIA																					
Augusta	1967	3	14.1	21.3	18.1	2	21.5	28.0	24.8	..	....	....	....	..	....	....	....	..	....	....	....
	1968	4	22.3	24.4	23.2	..	....	....	....	4	7.6	15.2	11.6	4	7.5	14.9	9.8	4	2.1	8.8	4.8
Savannah	1967	3	19.6	23.3	21.3	2	21.7	25.8	23.8	..	....	....	....	..	....	....	....	..	....	....	....
	1968	4	19.6	26.9	24.2	..	....	....	....	4	9.0	14.8	12.1	4	5.6	10.3	7.7	4	4.3	12.8	8.3
St. Marys	1967	3	13.3	21.5	17.3	2	23.2	31.5	27.4	..	....	....	....	..	....	....	....	..	....	....	....
	1968	3	22.0	23.1	22.6	..	....	....	....	3	12.9	17.1	15.1	3	3.8	9.4	6.4	3	2.5	9.2	5.5
Rossville	1967	2	11.1	14.0	12.6	1	26.4	26.4	....	..	....	....	....	..	....	....	....	..	....	....	....
	1968	4	19.5	24.0	21.8	..	....	....	....	4	9.4	15.2	12.4	4	5.2	8.2	6.5	4	6.9	12.7	9.2
Columbus	1967	1	15.1	15.1	....	1	28.1	28.1	....	..	....	....	....	..	....	....	....	..	....	....	....
	1968	3	17.7	24.6	21.2	..	....	....	....	2	5.8	11.5	8.6	3	5.1	12.0	7.8	2	9.1	12.5	10.8
HAWAII																					
Honolulu	1967	..	....	....	....	..	....	....	....	..	....	....	....	..	....	....	....	..	....	....	....
	1968	4	13.1	38.0	23.6	..	....	....	....	2	9.3	10.2	9.8	3	5.7	11.2	8.0	2	5.5	5.9	5.7
Hilo	1967	..	....	....	....	..	....	....	....	..	....	....	....	..	....	....	....	..	....	....	....
	1968	3	6.8	12.0	9.0	..	....	....	....	3	8.5	11.6	9.6	4	2.7	12.6	6.7	3	2.4	6.1	3.9
IDAHO																					
Coeur d'Alene	1967	4	11.2	12.9	12.0	4	11.8	16.6	14.2	..	....	....	....	..	....	....	....	..	....	....	....
	1968	1	16.7	16.7	....	..	....	....	....	3	7.4	10.0	8.5	1	8.9	8.9	....	2	5.8	6.0	5.9

Table B–1 (continued). DATA SUMMARY

State/city	Year	Fabric No. 8				Fabric No. 9				Quarterly nylon				Monthly nylon				Silver tarnishing			
		Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean
FLORIDA																					
Tampa	1967	..	....	....	.....	..	....	....	.....	4	0	2	1.0	12	0	3	0.2	12	75	94	83
	1968	4	4.9	12.7	9.1	4	18.6	32.0	26.2	4	0	4	1.2	12	0	3	0.2	12	59	95	84
Oneca	1967	..	....	....	.....	..	....	....	.....	4	0	2	0.5	8	0	0	0	9	31	60	51
	1968	3	6.2	9.4	8.0	4	17.8	35.2	28.8	4	0	2	1.0	12	0	0	0	12	33	67	48
Broward	1967	..	....	....	.....	..	....	....	.....	2	0	2	1.0	7	0	3	0.4	9	31	60	51
	1968	3	7.0	12.3	9.6	2	21.6	27.1	24.4	4	0	2	0.5	12	0	1	0.1	12	30	55	44
Pensacola	1967	..	....	....	.....	..	....	....	.....	2	0	3	1.5	6	0	1	0.2	6	40	77	64
	1968	3	7.4	8.9	8.4	3	21.9	35.9	29.2	3	0	2	1.0	11	0	1	0.1	11	53	79	67
Fernandina Beach	1967	..	....	....	.....	..	....	....	.....	..	....	....	.....	...	....	....	.....	...	....	....	.....
(231)	1968	3	7.4	18.1	13.6	3	26.4	33.0	30.0	3	0	1	0.3	11	0	3	0.3	10	71	91	84
Fernandina Beach	1967	..	....	....	.....	..	....	....	.....	..	....	....	.....	...	....	....	.....	...	....	....	.....
(232)	1968	3	7.1	11.0	9.1	3	23.2	31.7	28.4	3	0	1	0.3	10	0	0	0	8	87	96	93
Gainesville	1967	..	....	....	.....	..	....	....	.....	..	....	....	.....	...	....	....	.....	...	....	....	.....
	1968	3	9.3	13.4	10.8	3	17.0	33.4	26.1	3	0	0	0	9	0	1	0.1	10	69	86	78
GEORGIA																					
Augusta	1967	..	....	....	.....	..	....	....	.....	3	0	0	0	9	0	0	0	9	49	82	66
	1968	4	3.8	11.7	7.4	4	13.3	30.0	22.8	4	0	3	0.8	12	0	0	0	12	52	87	73
Savannah	1967	..	....	....	.....	..	....	....	.....	3	0	3	1.7	8	0	1	0.1	9	64	90	74
	1968	4	6.9	9.4	8.1	4	19.0	32.4	28.4	4	0	0	0	12	0	0	0	12	56	89	74
St. Marys	1967	..	....	....	.....	..	....	....	.....	2	0	0	0	8	0	0	0	8	67	95	84
	1968	3	12.1	18.1	14.8	3	23.0	31.3	28.2	3	0	2	0.7	12	0	0	0	12	80	95	89
Rossville	1967	..	....	....	.....	..	....	....	.....	2	0	0	0	6	0	1	0.2	7	42	70	52
	1968	4	5.2	10.5	7.3	4	16.3	30.7	21.5	3	0	0	0	12	0	0	0	12	32	73	53
Columbus	1967	..	....	....	.....	..	....	....	.....	..	....	....	.....	7	0	0	0	7	23	57	36
	1968	3	4.6	12.2	8.6	3	12.4	21.3	15.8	3	0	1	0.3	12	0	0	0	11	29	78	42
HAWAII																					
Honolulu	1967	..	....	....	.....	.	....	....	.....	..	....	....	.....	...	....	....	.....	...	....	....	.....
	1968	3	5.8	10.7	8.8	4	18.8	31.7	24.8	3	0	2	0.7	9	0	2	0.1	9	22	41	31
Hilo	1967	..	....	....	.....	..	....	....	.....	..	....	....	.....	...	....	....	.....	...	....	....	.....
	1968	4	4.1	15.0	9.6	4	8.9	32.7	18.8	3	0	0	0	8	0	0	0	8	13	72	33
IDAHO																					
Coeur d'Alene	1967	..	....	....	.....	..	....	....	.....	3	0	3	0.2	11	0	1	0.2	11	5	19	9
	1968	..	....	....	.....	1	20.2	20.2	.....	3	0	2	1.3	9	0	2	0.3	11	2	24	9

Table B–1 (continued). DATA SUMMARY

State/city	Year	Lead peroxide candle				Lead plates				Dustfall				Sticky paper				Rubber cracking			
		Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean
FLORIDA																					
Tampa	1967	12	0.6	1.4	0.9	- - -	- - - -	- - - -	- - - - -	12	2.9	9.8	5.0	12	11	43	30	50	0	.328	.132
	1968	12	0.4	1.5	0.8	11	3	8	5	12	2.4	17.4	6.1	11	11	54	33	51	0	.338	.098
Oneca	1967	8	0.0	0.5	0.1	- - -	- - - -	- - - -	- - - - -	8	0.9	4.7	2.1	8	0	16	6	32	0	.224	.080
	1968	12	0.0	0.2	0.1	8	0	2	0	11	0.7	3.4	2.3	5	1	24	- - - - -	32	0	.368	.124
Broward	1967	7	0.0	0.2	0.1	- - -	- - - -	- - - -	- - - - -	8	1.0	6.0	3.5	9	4	39	20	33	0	.295	.130
	1968	11	0.0	0.2	0.1	10	0	2	1	12	0.9	6.2	3.0	10	8	52	34	46	0	.343	.108
Pensacola	1967	6	0.0	0.3	0.2	- - -	- - - -	- - - -	- - - - -	5	2.2	6.6	- - - - -	5	4	18	- - - - -	21	0	.322	- - - - -
	1968	12	0.0	0.3	0.1	11	0	2	1	12	2.6	7.3	4.1	7	8	20	14	40	0	.404	.106
Fernandina Beach (231)	1967	- - -	- - - -	- - - -	- - - - -	- - -	- - - -	- - - -	- - - - -	- - -	- - - -	- - - -	- - - - -	- - -	- - - -	- - - -	- - - - -	- - -	- - - -	- - - -	- - - - -
	1968	10	0.0	0.7	0.2	4	0	3	- - - - -	8	0.7	13.7	4.7	9	1	62	14	41	0	.280	.087
Fernandina Beach (232)	1967	- - -	- - - -	- - - -	- - - - -	- - -	- - - -	- - - -	- - - - -	- - -	- - - -	- - - -	- - - - -	- - -	- - - -	- - - -	- - - - -	- - -	- - - -	- - - -	- - - - -
	1968	10	0.0	0.8	0.3	10	0	5	2	8	1.9	9.5	3.9	8	7	47	24	35	0	.237	.095
Gainesville	1967	- - -	- - - -	- - - -	- - - - -	- - -	- - - -	- - - -	- - - - -	- - -	- - - -	- - - -	- - - - -	- - -	- - - -	- - - -	- - - - -	- - -	- - - -	- - - -	- - - - -
	1968	10	0.0	0.2	0.0	6	0	1	0	9	0.3	15.5	5.4	9	1	33	12	45	0	.297	.083
GEORGIA																					
Augusta	1967	9	0.0	0.3	0.1	- - -	- - - -	- - - -	- - - - -	8	1.7	4.0	2.6	9	2	27	9	38	0	.270	.124
	1968	11	0.0	0.4	0.2	11	0	2	1	12	1.9	3.3	2.6	12	11	41	14	50	0	.353	.073
Savannah	1967	9	0.2	0.9	0.6	- - -	- - - -	- - - -	- - - - -	8	4.2	9.1	6.2	9	10	54	32	37	0	.381	.126
	1968	12	0.0	1.3	0.5	12	0	6	3	11	2.5	14.9	5.2	12	12	66	37	50	0	.345	.101
St. Marys	1967	9	0.0	0.6	0.2	- - -	- - - -	- - - -	- - - - -	7	1.6	9.0	4.5	8	1	34	11	33	0	.272	.103
	1968	11	0.1	0.6	0.3	12	0	5	2	11	1.2	6.6	4.5	8	3	37	23	41	0	.376	.130
Rossville	1967	7	0.0	0.4	0.2	- - -	- - - -	- - - -	- - - - -	7	4.3	6.0	5.3	6	1	10	4	28	0	.184	.062
	1968	12	0.0	0.5	0.2	12	0	4	1	12	3.1	11.3	7.2	12	9	40	17	50	0	.310	.073
Columbus	1967	7	0.0	0.1	0.0	- - -	- - - -	- - - -	- - - - -	7	1.2	4.2	2.4	6	2	4	3	27	0	.295	.082
	1968	12	0.0	0.3	0.1	12	0	2	1	12	1.1	4.9	2.2	12	1	43	12	47	0	.275	.071
HAWAII																					
Honolulu	1967	- - -	- - - -	- - - -	- - - - -	- - -	- - - -	- - - -	- - - - -	- - -	- - - -	- - - -	- - - - -	- - -	- - - -	- - - -	- - - - -	- - -	- - - -	- - - -	- - - - -
	1968	9	0.0	0.5	0.3	8	0	4	2	8	1.3	3.2	2.3	9	16	57	38	38	0	.246	.077
Hilo	1967	- - -	- - - -	- - - -	- - - - -	- - -	- - - -	- - - -	- - - - -	- - -	- - - -	- - - -	- - - - -	- - -	- - - -	- - - -	- - - - -	- - -	- - - -	- - - -	- - - - -
	1968	6	0.0	0.0	0.0	8	0	2	0	8	0.1	0.5	0.2	8	1	5	2	34	0	0	0
IDAHO																					
Coeur d'Alene	1967	12	0.0	0.3	0.1	- - -	- - - -	- - - -	- - - - -	12	2.5	16.1	5.7	11	6	31	15	28	0	.280	.101
	1968	12	0.0	0.2	0.1	12	0	2	0	10	2.7	12.6	4.9	2	13	37	- - - - -	19	0	.164	- - - - -

Table B–1 (continued). DATA SUMMARY

State/city	Year	Zinc				Annual steel				Quarterly steel				Fabric No. 1				Fabric No. 2			
		Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean
IDAHO (continued)																					
Lewiston (74)	1967	1	....	....	1.0	1	....	....	28	4	8	38	26	4	11.4	14.4	12.5	4	0.9	3.7	2.4
	1968	1	....	....	2.4	1	....	....	21	3	7	35	18	4	15.9	16.8	16.3	..	....	....	....
Lewiston (75)	1967	1	....	....	0.7	1	....	....	8	4	2	25	11	4	11.0	14.5	12.0	4	0.9	5.9	2.9
	1968	1	....	....	3.5	1	....	....	10	4	2	19	10	4	13.9	17.0	15.8	..	....	....	....
ILLINOIS																					
Chicago (26)	1967	1	....	....	6.4	1	....	....	38	4	23	102	62	4	14.0	18.4	16.2	4	5.9	12.2	9.5
	1968	1	....	....	5.2	1	....	....	31	4	30	83	50	4	15.4	21.9	18.6	..	....	....	....
East St. Louis	1967	1	....	....	2.7	1	....	....	44	4	68	82	72	4	15.0	21.2	18.4	4	1.8	6.3	3.6
	1968	1	....	....	3.3	..	....	....	....	3	62	73	69	4	23.0	25.7	24.0	..	....	....	....
Chicago (54)	1967	1	....	....	3.0	1	....	....	45	4	50	86	62	4	13.5	17.8	15.8	4	2.8	7.5	4.6
	1968	..	....	....	....	..	....	....	....	1	44	44	....	3	15.8	19.4	17.4	..	....	....	....
Calumet City	1967	..	....	....	....	..	....	....	....	4	52	124	80	2	16.4	19.0	17.7	3	4.9	10.1	8.1
	1968	1	....	....	2.4	1	....	....	34	4	46	83	65	4	19.5	23.6	21.4	..	....	....	....
Hennipen	1967	..	....	....	....	1	....	....	37	4	30	55	46	4	14.8	16.6	15.9	4	0.9	3.3	1.8
	1968	1	....	....	1.1	1	....	....	31	3	35	49	41	3	17.7	20.7	18.9	..	....	....	....
Rock Island	1967	1	....	....	1.1	1	....	....	24	4	4	39	24	4	17.0	19.6	18.4	4	1.3	6.8	3.5
	1968	1	....	....	1.3	1	....	....	19	3	22	36	31	3	21.0	21.8	21.4	..	....	....	....
Moline	1967	1	....	....	0.8	1	....	....	29	4	5	70	33	4	15.6	18.4	17.0	4	1.9	8.6	4.6
	1968	1	....	....	1.5	1	....	....	21	2	9	30	20	4	14.9	18.4	17.3	..	....	....	....
Cicero	1967	1	....	....	....	..	....	....	....	2	72	81	76	2	10.6	16.2	13.4	3	2.7	3.8	3.4
	1968	1	....	....	4.6	1	....	....	31	3	50	104	78	2	18.6	21.3	20.0	..	....	....	....
Bedford Park	1967	..	....	....	....	1	....	....	35	2	60	65	62	2	16.7	19.1	17.9	2	4.9	8.5	6.7
	1968	1	....	....	3.4	1	....	....	40	4	54	90	72	4	17.6	22.6	20.0	..	....	....	....
Chicago Heights (138)	1967	..	....	....	....	..	....	....	....	2	66	73	70	2	17.5	18.2	17.8	2	2.3	3.2	2.8
	1968	..	....	....	....	..	....	....	....	2	72	140	106	4	19.0	22.8	20.9	..	....	....	....
Palatine	1967	..	....	....	....	1	....	....	23	2	33	38	36	2	17.4	18.0	17.7	2	2.6	4.6	3.6
	1968	1	....	....	0.9	1	....	....	28	3	36	44	40	3	16.8	22.5	19.5	..	....	....	....
East Dubuque	1967	..	....	....	....	..	....	....	....	..	....	....	....	..	....	....	....	..	....	....	....
	1968	1	....	....	1.4	..	....	....	....	1	41	41	....	4	18.0	20.1	19.0	..	....	....	....
Metropolis	1967	..	....	....	....	..	....	....	....	..	....	....	....	..	....	....	....	..	....	....	....
	1968	..	....	....	....	..	....	....	....	1	63	63	....	1	23.7	23.7	....	..	....	....	....
Cairo	1967	..	....	....	....	..	....	....	....	..	....	....	....	..	....	....	....	..	....	....	....
	1968	..	....	....	....	..	....	....	....	1	63	63	....	2	17.0	18.7	17.8	..	....	....	....

Table B–1 (continued). DATA SUMMARY

State/city	Year	Fabric No. 3				Fabric No. 4				Fabric No. 5				Fabric No. 6				Fabric No. 7			
		Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean
IDAHO (continued)																					
Lewiston (74)	1967	4	12.0	17.5	15.4	4	9.0	17.6	13.6	..	....	....	.....	..	....	....	.....	..	....	....	.....
	1968	4	14.6	19.3	16.7	..	....	....	.....	4	4.9	14.5	9.7	3	6.5	8.7	7.3	3	6.1	12.8	10.2
Lewiston (75)	1967	3	12.1	18.5	14.6	4	7.8	15.1	11.8	..	....	....	.....	..	....	....	.....	..	....	....	.....
	1968	4	17.1	20.9	18.7	..	....	....	.....	4	3.6	10.8	7.6	3	6.3	7.8	6.8	4	6.5	10.7	8.7
ILLINOIS																					
Chicago (26)	1967	4	35.4	48.6	42.8	3	7.8	14.5	11.1	..	....	....	.....	..	....	....	.....	..	....	....	.....
	1968	4	47.9	54.0	50.7	..	....	....	.....	4	2.3	5.8	4.0	4	13.0	17.7	14.8	4	9.9	22.1	15.3
East St. Louis	1967	4	16.9	22.4	19.6	4	10.9	23.6	16.4	..	....	....	.....	..	....	....	.....	..	....	....	.....
	1968	4	18.7	29.3	25.4	..	....	....	.....	4	5.5	14.3	9.3	3	8.3	10.9	9.5	3	4.6	12.9	10.1
Chicago (54)	1967	4	23.1	40.1	29.8	4	11.0	29.1	18.1	..	....	....	.....	..	....	....	.....	..	....	....	.....
	1968	2	32.8	36.8	34.8	..	....	....	.....	3	5.4	10.7	7.9	3	9.4	18.6	12.6	4	8.9	14.5	12.0
Calumet City	1967	3	18.1	26.4	20.9	3	12.9	26.0	20.1	..	....	....	.....	..	....	....	.....	..	....	....	.....
	1968	4	25.0	33.2	28.0	..	....	....	.....	4	6.7	15.9	10.4	4	7.8	15.7	12.3	4	7.6	12.9	9.6
Hennepin	1967	4	9.2	19.6	14.9	3	16.5	25.8	21.7	..	....	....	.....	..	....	....	.....	..	....	....	.....
	1968	3	5.0	21.9	17.5	..	....	....	.....	3	9.7	16.3	11.9	3	5.2	11.0	7.7	2	10.6	10.8	10.7
Rock Island	1967	4	[illegible]	18.8	15.0	4	10.6	22.7	15.9	..	....	....	.....	..	....	....	.....	..	....	....	.....
	1968	2	[illegible]	22.5	21.6	..	....	....	.....	3	6.3	12.5	10.3	3	8.5	14.4	10.7	4	7.2	11.3	9.0
Moline	1967	4	12.2	20.0	16.5	4	11.0	19.1	15.0	..	....	....	.....	..	....	....	.....	..	....	....	.....
	1968	4	18.5	20.1	19.3	..	....	....	.....	4	7.8	13.7	10.8	3	7.2	12.1	8.9	4	4.6	15.1	9.5
Cicero	1967	3	17.7	39.5	28.9	3	12.4	22.9	15.9	..	....	....	.....	..	....	....	.....	..	....	....	.....
	1968	2	39.5	44.2	41.8	..	....	....	.....	..	....	....	.....	2	11.3	17.5	14.4	2	11.8	17.9	14.8
Bedford Park	1967	2	26.4	29.5	28.0	2	11.4	22.7	17.0	..	....	....	.....	..	....	....	.....	..	....	....	.....
	1968	3	33.5	43.7	37.0	..	....	....	.....	4	5.1	12.2	8.3	3	9.9	13.3	11.5	4	7.2	20.0	14.2
Chicago Heights (138)	1967	2	18.0	25.0	21.5	2	13.4	25.1	19.2	..	....	....	.....	..	....	....	.....	..	....	....	.....
	1968	3	23.1	27.3	24.5	..	....	....	.....	4	6.5	14.4	10.4	4	8.8	11.8	9.9	4	7.8	14.2	10.0
Palatine	1967	2	16.7	24.7	20.7	2	15.7	27.2	21.4	..	....	....	.....	..	....	....	.....	..	....	....	.....
	1968	3	21.6	27.8	24.1	..	....	....	.....	3	7.5	14.3	10.4	4	9.8	13.6	11.6	3	9.6	15.6	12.2
East Dubuque	1967	..	....	....	.....	..	....	....	.....	..	....	....	.....	..	....	....	.....	..	....	....	.....
	1968	1	20.2	20.2	.....	..	....	....	.....	2	7.9	12.2	10.0	3	6.1	10.0	7.6	..	....	....	.....
Metropolis	1967	..	....	....	.....	..	....	....	.....	..	....	....	.....	..	....	....	.....	..	....	....	.....
	1968	1	24.2	24.2	.....	..	....	....	.....	1	15.1	15.1	.....	1	8.2	8.2	.....	..	....	....	.....
Cairo	1967	..	....	....	.....	..	....	....	.....	..	....	....	.....	..	....	....	.....	..	....	....	.....
	1968	1	18.9	18.9	.....	..	....	....	.....	2	10.2	13.1	11.6	2	6.4	13.2	9.8	2	4.8	10.8	7.8

Table B–1 (continued). DATA SUMMARY

State/city	Year	Fabric No. 8				Fabric No. 9				Quarterly nylon				Monthly nylon				Silver tarnishing			
		Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean
IDAHO (continued)																					
Lewiston (74)	1967	..	....	....	.....	..	....	....	.....	4	0	0	0	11	0	0	0	12	58	96	84
	1968	3	2.9	6.7	5.1	4	10.5	26.1	16.3	4	0	1	0.2	12	0	1	0.1	12	74	96	87
Lewiston (75)	1967	..	....	....	.....	..	....	....	.....	4	0	0	0	12	0	0	0	11	32	93	64
	1968	4	3.9	9.2	6.4	4	11.4	26.7	18.5	4	0	0	0	12	0	0	0	12	46	99	77
ILLINOIS																					
Chicago (26)	1967	..	....	....	.....	..	....	....	.....	4	0	13	5.5	12	0	19	3.3	11	39	96	72
	1968	4	6.4	13.5	8.8	4	20.2	28.7	23.0	4	2	15	8.8	12	0	11	3.0	10	50	88	77
East St. Louis	1967	..	....	....	.....	..	....	....	.....	4	0	7	2.5	12	0	3	0.7	12	48	82	65
	1968	4	5.5	8.1	7.1	4	16.0	29.7	22.0	4	0	2	0.5	12	0	1	0.2	12	50	90	71
Chicago (54)	1967	..	....	....	.....	..	....	....	.....	4	0	0	0	12	0	0	0	11	27	82	47
	1968	4	5.3	8.7	7.8	3	10.3	29.6	19.8	2	0	0	0	9	0	0	0	10	53	79	64
Calumet City	1967	..	....	....	.....	..	....	....	.....	4	0	6	2.2	12	0	2	0.4	10	26	92	68
	1968	4	5.0	9.7	8.1	4	10.9	23.4	18.0	4	0	3	0.8	11	0	2	0.4	12	44	74	60
Hennepin	1967	..	....	....	.....	..	....	....	.....	4	0	0	0	10	0	0	0	12	12	64	34
	1968	2	5.3	7.7	6.5	3	12.1	25.2	18.2	3	0	0	0	12	0	0	0	12	21	52	34
Rock Island	1967	..	....	....	.....	..	....	....	.....	3	0	1	0.3	12	0	0	0	12	11	54	34
	1968	3	4.9	6.2	5.7	3	14.1	26.0	19.9	4	0	2	0.5	12	0	1	0.1	12	20	50	34
Moline	1967	..	....	....	.....	..	....	....	.....	4	0	4	1.2	12	0	1	0.1	12	15	47	32
	1968	4	2.7	6.6	5.2	4	12.0	24.6	17.8	4	0	0	0	9	0	1	0.1	9	9	59	37
Cicero	1967	..	....	....	.....	..	....	....	.....	2	0	0	0	7	0	0	0	7	68	91	80
	1968	2	7.0	12.4	9.7	2	19.4	31.9	25.6	4	0	0	0	11	0	3	0.3	12	74	88	81
Bedford Park	1967	..	....	....	.....	..	....	....	.....	2	0	0	0	6	0	0	0	6	61	87	78
	1968	4	5.3	10.7	7.8	4	15.4	25.2	21.1	4	0	0	0	12	0	1	0.1	12	59	91	79
Chicago Heights (138)	1967	..	....	....	.....	..	....	....	.....	2	0	0	0	6	0	0	0	5	62	85	.....
	1968	4	4.6	9.7	7.6	4	14.2	25.9	18.5	4	0	0	0	12	0	5	0.7	12	44	80	64
Palatine	1967	..	....	....	.....	..	....	....	.....	2	0	0	0	7	0	0	0	7	33	60	42
	1968	3	6.1	10.0	7.5	3	16.2	25.9	19.8	3	0	5	1.7	12	0	0	0	11	29	58	42
East Dubuque	1967	..	....	....	.....	..	....	....	.....	..	....	....	.....	...	....	....	.....	...	....	....	.....
	1968	2	3.2	10.9	7.0	3	11.7	26.9	19.9	1	0	0	.....	10	0	1	0.1	10	12	40	24
Metropolis	1967	..	....	....	.....	..	....	....	.....	..	....	....	.....	...	....	....	.....	...	....	....	.....
	1968	1	17.9	17.9	.....	2	17.9	39.6	28.8	2	0	0	0	6	0	0	0	6	36	61	46
Cairo	1967	..	....	....	.....	..	....	....	.....	..	....	....	.....	...	....	....	.....	...	....	....	.....
	1968	2	8.8	18.7	13.8	2	22.5	27.6	25.0	2	0	0	0	3	0	0	.....	5	38	82	.....

Table B–1 (continued). DATA SUMMARY

State/city	Year	Lead peroxide candle				Lead plates				Dustfall				Sticky paper				Rubber cracking			
		Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean
IDAHO (continued)																					
Lewiston (74)	1967	12	0.0	0.4	0.2	...	....	....	.....	12	4.0	40.9	10.1	12	22	48	25	45	0	.242	.065
	1968	11	0.0	0.2	0.1	10	0	2	1	10	4.4	11.5	7.9	...	....	....	.....	1	0	0	.....
Lewiston (75)	1967	12	0.0	0.2	0.1	...	....	....	.....	12	3.6	42.5	9.4	12	8	39	28	42	0	.304	.063
	1968	11	0.0	0.2	0.1	11	0	2	1	11	4.3	14.7	8.2	...	....	....	.....	2	0	0	.....
ILLINOIS																					
Chicago (26)	1967	12	1.4	6.9	3.8	...	....	....	.....	12	14.0	35.3	22.1	12	38	78	58	50	0	.136	.030
	1968	12	0.9	8.7	3.3	11	6	63	29	12	13.5	27.6	20.0	12	57	87	74	51	0	.150	.021
East St. Louis	1967	12	0.7	2.8	1.8	...	....	....	.....	12	4.4	10.4	7.3	12	32	68	52	52	0	.234	.093
	1968	12	0.9	4.7	1.6	12	6	23	12	12	4.7	10.2	7.7	12	12	77	51	52	0	.355	.069
Chicago (54)	1967	10	0.6	2.5	1.4	...	....	....	.....	12	2.4	8.4	5.0	12	8	51	23	44	0	.278	.070
	1968	10	0.5	3.0	1.3	8	5	21	11	12	2.2	6.4	4.2	11	4	62	35	43	0	.348	.060
Calumet City	1967	10	0.8	2.9	1.6	...	....	....	.....	10	2.4	16.1	6.1	11	24	71	45	45	0	.413	.098
	1968	11	0.9	2.2	1.6	11	0	18	11	12	3.6	17.5	7.1	12	24	78	42	51	0	.232	.082
Hennepin	1967	11	0.0	0.5	0.3	...	....	....	.....	12	1.2	62.7	9.2	12	4	39	12	51	0	.353	.126
	1968	12	0.0	0.8	0.2	12	0	6	2	11	1.4	5.6	3.7	12	1	38	14	46	0	.451	.110
Rock Island	1967	12	0.0	0.5	0.4	...	....	....	.....	12	2.9	14.3	6.2	12	13	58	29	51	0	.312	.074
	1968	11	0.0	1.1	0.3	12	2	7	3	12	1.5	9.7	5.2	12	9	61	35	49	0	.369	.068
Moline	1967	12	0.1	1.6	0.7	...	....	....	.....	12	3.6	18.0	7.9	9	7	59	33	44	0	.383	.094
	1968	8	0.1	2.0	0.8	8	0	18	6	9	3.1	11.8	6.9	8	2	78	42	40	0	.363	.051
Cicero	1967	7	1.5	3.7	2.4	...	....	....	.....	7	3.5	9.6	6.5	3	49	66	.....	29	0	.295	.107
	1968	12	1.3	6.0	2.5	9	9	30	18	11	5.7	10.3	6.9	10	33	73	59	50	0	.257	.052
Bedford Park	1967	6	1.1	3.0	2.0	...	....	....	.....	6	7.4	13.9	10.1	8	29	62	47	25	0	.242	.....
	1968	12	1.1	4.3	1.9	11	6	30	13	11	6.0	18.2	9.0	9	44	79	57	40	0	.365	.067
Chicago Heights (138)	1967	6	0.9	1.3	1.1	...	....	....	.....	6	2.5	11.9	5.3	6	14	28	20	26	0	.320	.118
	1968	12	0.5	2.1	1.1	10	3	14	9	12	1.7	7.9	4.2	10	10	73	33	50	0	.394	.069
Palatine	1967	7	0.2	0.7	0.5	...	....	....	.....	7	0.6	4.7	2.0	6	1	27	11	28	0	.353	.123
	1968	11	0.0	1.1	0.5	9	2	11	4	12	1.1	7.3	4.0	7	9	48	22	45	0	.404	.106
East Dubuque	1967	...	....	....	.....	...	....	....	.....	...	....	....	.....	...	....	....	.....	...	....	....	.....
	1968	11	0.0	1.8	0.6	10	1	11	5	10	4.4	25.0	9.5	11	16	66	35	45	0	.300	.067
Metropolis	1967	...	....	....	.....	...	....	....	.....	...	....	....	.....	...	....	....	.....	...	....	....	.....
	1968	6	0.2	1.3	0.7	3	5	9	.....	4	4.3	4.9	.....	5	5	23	.....	19	0	.232	.....
Cairo	1967	...	....	....	.....	...	....	....	.....	...	....	....	.....	...	....	....	.....	...	....	....	.....
	1968	5	0.0	1.0	.....	...	....	....	.....	5	1.3	2.2	.....	5	9	28	.....	17	0	.295	.....

Table B–1 (continued). DATA SUMMARY

State/city	Year	Zinc				Annual steel				Quarterly steel				Fabric No. 1				Fabric No. 2			
		Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean
INDIANA																					
Jeffersonville	1967	1	----	----	1.3	1	----	----	43	4	56	84	71	4	15.8	20.5	18.3	4	3.8	10.3	5.8
	1968	1	----	----	1.8	1	----	----	43	3	71	107	89	3	18.7	24.9	21.3	--	----	----	-----
Tell City	1967	1	----	----	5.5	1	----	----	33	4	30	53	39	3	12.9	16.5	15.0	3	1.1	2.8	1.7
	1968	1	----	----	1.4	1	----	----	37	3	29	51	42	4	16.4	20.6	18.2	--	----	----	-----
Evansville	1967	1	----	----	1.6	1	----	----	33	4	43	60	53	4	14.2	18.9	16.6	4	1.9	7.1	3.3
	1968	1	----	----	2.0	1	----	----	38	4	40	72	52	3	17.7	23.4	21.1	--	----	----	-----
East Chicago	1967	--	----	----	-----	--	----	----	-----	4	71	111	91	3	22.3	27.1	24.2	3	11.6	17.9	14.4
	1968	1	----	----	11.7	1	----	----	61	4	69	131	99	3	23.6	29.1	25.8	--	----	----	-----
Hammond	1967	1	----	----	3.1	1	----	----	62	4	60	91	76	4	14.9	19.0	17.5	4	2.5	10.1	5.0
	1968	1	----	----	4.8	--	----	----	-----	4	64	84	77	4	20.6	23.2	21.9	--	----	----	-----
Gary	1967	--	----	----	-----	--	----	----	-----	2	60	69	65	2	15.9	20.4	18.2	2	6.4	8.9	7.6
	1968	--	----	----	-----	--	----	----	-----	3	40	74	55	3	17.0	25.5	20.7	--	----	----	-----
Charlestown	1967	--	----	----	-----	--	----	----	-----	--	----	----	-----	--	----	----	-----	--	----	----	-----
	1968	--	----	----	-----	--	----	----	-----	--	----	----	-----	--	----	----	-----	--	----	----	-----
IOWA																					
Davenport	1967	1	----	----	1.3	1	----	----	28	4	5	34	21	4	11.0	17.9	14.8	4	1.9	3.3	2.5
	1968	1	----	----	2.2	1	----	----	19	4	11	35	20	4	18.0	20.7	19.4	--	----	----	-----
Sioux City	1967	--	----	----	-----	--	----	----	-----	--	----	----	-----	1	17.0	17.0	-----	1	1.4	1.4	-----
	1968	1	----	----	0.5	1	----	----	5	4	1	8	4	3	18.7	20.3	19.3	--	----	----	-----
Council Bluffs	1967	--	----	----	-----	--	----	----	-----	--	----	----	-----	1	15.0	15.0	-----	1	1.2	1.2	-----
	1968	1	----	----	0.5	1	----	----	14	4	2	10	5	4	16.6	18.8	17.9	--	----	----	-----
Dubuque	1967	--	----	----	-----	--	----	----	-----	--	----	----	-----	--	----	----	-----	--	----	----	-----
	1968	1	----	----	1.1	1	----	----	26	4	23	46	35	4	17.9	21.7	19.6	--	----	----	-----
KANSAS																					
Kansas City (47)	1967	1	----	----	1.0	1	----	----	23	4	18	32	25	4	14.9	20.0	16.7	3	1.8	4.0	3.1
	1968	1	----	----	1.0	--	----	----	-----	3	6	62	31	2	22.1	22.3	22.2	--	----	----	-----
Kansas City (87)	1967	--	----	----	-----	1	----	----	20	3	8	31	15	4	14.0	18.2	15.6	3	2.4	7.9	4.5
	1968	1	----	----	1.4	1	----	----	21	3	7	17	11	2	18.4	20.4	19.4	--	----	----	-----
Overland Park	1967	1	----	----	0.7	1	----	----	17	4	4	21	11	4	13.2	16.8	14.9	3	1.3	2.2	1.6
	1968	1	----	----	0.5	1	----	----	13	4	5	18	9	3	16.1	19.2	17.4	--	----	----	-----
Elwood	1967	--	----	----	-----	--	----	----	-----	--	----	----	-----	--	----	----	-----	1	1.1	1.1	-----
	1968	1	----	----	0.5	1	----	----	9	4	1	8	4	4	13.9	19.0	16.8	--	----	----	-----

Table B–1 (continued). DATA SUMMARY

State/city	Year	Fabric No. 3				Fabric No. 4				Fabric No. 5				Fabric No. 6				Fabric No. 7			
		Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean
INDIANA																					
Jeffersonville	1967	4	17.7	27.0	22.2	4	10.2	25.5	17.4	--	----	----	----	--	----	----	----	--	----	----	----
	1968	2	19.9	31.4	25.6	--	----	----	----	3	5.0	11.9	8.4	3	9.1	12.7	10.4	3	9.9	13.2	11.4
Tell City	1967	3	13.4	16.9	14.9	2	14.3	17.6	16.0	--	----	----	----	--	----	----	----	--	----	----	----
	1968	4	22.5	22.9	22.7	--	----	----	----	4	8.2	16.3	12.2	4	5.2	10.6	8.3	4	1.8	17.3	7.3
Evansville	1967	4	15.6	22.0	19.2	4	14.3	25.1	18.6	--	----	----	----	--	----	----	----	--	----	----	----
	1968	4	24.1	32.5	27.2	--	----	----	----	4	6.4	13.6	9.9	4	5.9	9.6	7.8	4	3.0	13.5	9.0
East Chicago	1967	3	26.1	31.5	25.8	3	10.5	21.0	15.8	--	----	----	----	--	----	----	----	--	----	----	----
	1968	4	29.5	33.3	32.0	--	----	----	----	4	4.6	10.3	7.2	3	15.5	18.6	17.4	4	6.9	19.3	14.5
Hammond	1967	4	16.3	28.2	21.6	4	12.1	23.5	16.9	--	----	----	----	--	----	----	----	--	----	----	----
	1968	4	27.9	35.5	30.2	--	----	----	----	4	5.7	11.8	8.5	4	9.4	17.4	13.3	4	8.1	17.4	12.8
Gary	1967	2	18.1	24.6	21.4	2	11.2	16.2	13.7	--	----	----	----	--	----	----	----	--	----	----	----
	1968	4	24.6	30.8	28.0	--	----	----	----	4	4.9	11.1	7.7	4	9.0	12.5	10.4	4	9.0	12.5	11.0
Charlestown	1967	--	----	----	----	--	----	----	----	--	----	----	----	--	----	----	----	--	----	----	----
	1968	--	----	----	----	--	----	----	----	--	----	----	----	--	----	----	----	--	----	----	----
IOWA																					
Davenport	1967	4	13.5	21.1	18.2	4	7.3	20.2	14.8	--	----	----	----	--	----	----	----	--	----	----	----
	1968	3	19.3	23.6	21.5	--	----	----	----	4	5.6	13.5	9.5	4	8.1	9.8	8.6	4	6.7	14.4	11.3
Sioux City	1967	1	18.4	18.4	----	1	9.6	9.6	----	--	----	----	----	--	----	----	----	--	----	----	----
	1968	4	16.2	19.5	18.3	--	----	----	----	3	7.8	12.5	9.4	4	6.2	10.1	8.0	4	6.5	10.7	8.9
Council Bluffs	1967	1	11.0	11.0	----	--	----	----	----	--	----	----	----	--	----	----	----	--	----	----	----
	1968	4	15.6	20.8	18.0	--	----	----	----	3	8.0	13.0	11.1	4	6.2	10.0	7.6	4	8.2	12.0	9.8
Dubuque	1967	--	----	----	----	--	----	----	----	--	----	----	----	--	----	----	----	--	----	----	----
	1968	4	14.7	21.1	18.6	--	----	----	----	4	7.4	12.6	10.0	4	6.9	11.5	8.9	4	6.9	11.5	10.4
KANSAS																					
Kansas City (47)	1967	4	12.2	22.8	19.0	3	10.6	21.0	17.5	--	----	----	----	--	----	----	----	--	----	----	----
	1968	2	23.2	24.2	23.7	--	----	----	----	1	13.0	13.0	----	2	5.7	6.6	6.2	2	2.7	3.9	3.3
Kansas City (87)	1967	4	14.5	21.4	18.2	4	10.6	23.8	17.4	--	----	----	----	--	----	----	----	--	----	----	----
	1968	2	21.8	24.8	23.3	--	----	----	----	2	11.4	11.7	11.6	2	8.4	9.9	9.2	2	7.5	10.9	9.2
Overland Park	1967	4	12.9	17.2	15.8	3	11.9	25.6	20.9	--	----	----	----	--	----	----	----	--	----	----	----
	1968	3	16.3	21.0	18.7	--	----	----	----	2	8.7	8.9	8.8	3	5.7	8.4	6.7	3	5.4	7.2	6.1
Elwood	1967	1	9.1	9.1	----	--	----	----	----	--	----	----	----	--	----	----	----	--	----	----	----
	1968	4	11.1	18.2	14.8	--	----	----	----	4	7.3	13.2	10.0	4	5.0	9.0	7.1	4	3.1	16.0	7.5

Table B–1 (continued). DATA SUMMARY

State/city	Year	Fabric No. 8				Fabric No. 9				Quarterly nylon				Monthly nylon				Silver tarnishing			
		Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean
INDIANA																					
Jeffersonville	1967	..	....	....	.....	..	....	....	.....	4	0	0	0	12	0	0	0	12	39	69	54
	1968	2	6.6	8.9	7.8	3	14.0	27.6	19.7	3	0	2	0.7	11	0	0	0	12	35	79	58
Tell City	1967	..	....	....	.....	..	....	....	.....	4	0	0	0	11	0	0	0	12	36	95	48
	1968	4	6.6	11.6	9.2	4	13.9	26.8	18.9	4	0	2	0.5	11	0	0	0	11	33	73	55
Evansville	1967	..	....	....	.....	..	....	....	.....	2	0	0	0	11	0	1	0.1	12	28	57	37
	1968	4	8.4	14.9	11.1	4	14.0	28.2	20.8	4	0	2	1.2	12	0	2	0.4	12	25	49	35
East Chicago	1967	..	....	....	.....	..	....	....	.....	4	0	6	4.0	11	0	20	2.4	12	79	100	90
	1968	4	7.4	10.5	9.0	3	19.3	27.2	24.2	4	0	9	3.5	12	0	3	1.0	12	82	94	90
Hammond	1967	..	....	....	.....	..	....	....	.....	4	0	0	0	11	0	1	0.2	12	48	96	77
	1968	4	3.0	10.4	8.2	4	12.4	26.9	19.4	4	0	1	0.2	11	0	2	0.3	12	55	91	74
Gary	1967	..	....	....	.....	..	....	....	.....	2	0	2	1.0	5	0	1	.....	5	45	86	.....
	1968	4	5.6	8.8	7.5	4	14.4	28.2	21.8	4	0	4	2.0	12	0	4	1.0	12	51	86	72
Charlestown	1967	..	....	....	.....	..	....	....	.....	..	....	....	.....	...	....	....	.....	...	....	....	.....
	1968	..	....	....	.....	..	....	....	.....	1	0	0	.....	4	0	0	.....	4	26	46	.....
IOWA																					
Davenport	1967	..	....	....	.....	..	....	....	.....	4	0	0	0	12	0	0	0	12	17	66	36
	1968	4	7.3	12.3	8.7	4	16.6	24.5	20.8	4	0	0	0	12	0	0	0	12	14	59	33
Sioux City	1967	..	....	....	.....	..	....	....	.....	..	....	....	.....	...	....	....	.....	2	11	20	.....
	1968	4	3.0	10.4	6.6	4	9.1	23.6	16.1	4	0	0	0	12	0	0	0	12	10	59	25
Council Bluffs	1967	..	....	....	.....	..	....	....	.....	..	....	....	.....	...	....	....	.....	2	22	94	.....
	1968	4	3.8	13.4	7.8	4	13.1	29.9	18.7	4	0	0	0	12	0	0	0	12	15	42	26
Dubuque	1967	..	....	....	.....	..	....	....	.....	..	....	....	.....	...	....	....	.....	...	....	....	.....
	1968	4	3.1	9.7	6.3	4	12.0	26.9	17.9	4	0	1	0.2	10	0	0	0	10	12	67	32
KANSAS																					
Kansas City (47)	1967	..	....	....	.....	..	....	....	.....	4	0	2	0.5	12	0	0	0	12	26	91	60
	1968	2	6.1	6.4	6.2	2	17.5	25.4	21.4	4	0	0	0	12	0	0	0	12	25	84	59
Kansas City (87)	1967	..	....	....	.....	..	....	....	.....	4	0	2	0.5	12	0	2	0.2	12	14	76	40
	1968	2	6.8	9.8	8.3	2	24.2	24.7	24.4	4	0	0	0	12	0	0	0	12	20	67	44
Overland Park	1967	..	....	....	.....	..	....	....	.....	4	0	2	0.5	12	0	2	0.2	12	20	55	34
	1968	3	3.7	7.3	4.9	3	10.9	25.8	17.2	4	0	0	0	12	0	0	0	12	16	47	29
Elwood	1967	..	....	....	.....	..	....	....	.....	..	....	....	.....	...	....	....	.....	2	37	39	.....
	1968	4	4.8	7.8	6.2	4	9.5	23.1	16.2	4	0	1	0.2	12	0	1	0.1	12	22	50	33

Table B–1 (continued). DATA SUMMARY

State/city	Year	Lead peroxide candle				Lead plates				Dustfall				Sticky paper				Rubber cracking			
		Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean
INDIANA																					
Jeffersonville	1967	12	0.6	1.9	1.1	----	----	----	----	12	4.5	31.1	10.9	12	12	54	29	47	0	.252	.100
	1968	12	0.6	2.2	1.2	7	3	18	8	12	8.0	14.6	11.3	9	19	64	37	42	0	.216	.068
Tell City	1967	12	0.0	0.7	0.4	----	----	----	----	12	0.7	6.6	3.5	12	2	33	14	51	0	.514	.126
	1968	11	0.0	1.5	0.4	9	0	8	3	12	2.3	6.2	4.0	12	1	48	20	47	0	.660	.124
Evansville	1967	12	0.6	1.9	1.2	----	----	----	----	12	3.9	12.2	6.3	12	27	65	43	46	0	.388	.107
	1968	12	0.5	2.8	1.3	12	3	20	9	12	3.5	10.3	5.9	12	12	76	46	52	0	.413	.091
East Chicago	1967	11	2.9	10.7	5.2	----	----	----	----	12	4.3	22.0	13.1	12	51	81	69	49	0	.330	.094
	1968	10	1.5	7.3	4.7	12	10	72	40	12	5.6	23.0	12.5	12	53	89	75	51	0	.358	.070
Hammond	1967	11	1.3	7.3	2.3	----	----	----	----	10	3.9	17.3	10.0	12	34	71	40	50	0	.340	.097
	1968	11	0.9	3.1	1.8	11	7	21	13	11	4.6	14.8	8.3	12	14	82	54	50	0	.292	.075
Gary	1967	5	0.5	2.4	----	----	----	----	----	5	14.8	26.9	----	6	50	78	70	23	0	.272	----
	1968	12	0.4	3.7	1.5	12	3	26	12	11	7.3	29.3	20.4	12	57	88	74	48	0	.223	.051
Charlestown	1967	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
	1968	4	0.0	0.6	----	3	0	6	----	4	3.7	5.3	----	1	7	7	----	11	0	.154	----
IOWA																					
Davenport	1967	11	0.0	1.0	0.4	----	----	----	----	12	6.1	27.4	12.6	12	18	71	46	53	0	.353	.048
	1968	11	0.0	1.0	0.3	12	0	8	3	12	6.0	20.6	9.7	12	16	93	60	50	0	.388	.034
Sioux City	1967	----	----	----	----	----	----	----	----	----	----	----	----	3	12	29	----	10	0	0	----
	1968	12	0.0	0.3	0.1	2	0	0	----	11	1.1	16.2	27.8	12	5	80	48	49	0	.255	.064
Council Bluffs	1967	----	----	----	----	----	----	----	----	----	----	----	----	2	22	36	----	7	0	0	----
	1968	12	0.0	0.5	0.1	11	0	3	1	12	3.2	12.7	7.2	12	14	77	43	50	0	.209	.062
Dubuque	1967	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
	1968	11	0.0	1.2	0.6	8	0	10	3	11	4.6	11.0	8.1	10	18	79	48	45	0	.249	.078
KANSAS																					
Kansas City (47)	1967	12	0.0	0.8	0.4	----	----	----	----	11	5.3	20.5	9.8	12	11	68	32	49	0	.418	.106
	1968	12	0.0	1.0	0.3	11	0	7	2	12	5.4	16.3	8.6	11	10	65	29	47	0	.224	.060
Kansas City (87)	1967	12	0.0	0.7	0.2	----	----	----	----	11	3.8	8.9	5.6	12	23	67	38	50	0	.335	.104
	1968	11	0.0	0.4	0.2	12	0	6	2	12	3.9	11.7	6.6	11	12	76	39	48	0	.411	.093
Overland Park	1967	12	0.0	0.3	0.1	----	----	----	----	12	1.0	6.2	2.7	12	4	54	17	50	0	.426	.148
	1968	12	0.0	0.4	0.1	12	0	2	1	12	0.8	5.7	2.8	12	4	46	23	51	0	.489	.103
Elwood	1967	----	----	----	----	----	----	----	----	----	----	----	----	2	3	12	----	7	0	0	----
	1968	12	0.0	0.4	0.1	12	0	2	0	12	2.3	18.5	7.9	11	3	71	30	50	0	.431	.093

Table B–1 (continued). DATA SUMMARY

State/city	Year	Zinc				Annual steel				Quarterly steel				Fabric No. 1				Fabric No. 2			
		Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean
KENTUCKY																					
Louisville	1967	1	----	----	1.8	1	----	----	30	4	47	69	58	4	15.9	20.1	18.3	4	3.1	9.6	6.0
	1968	1	----	----	2.0	1	----	----	33	3	54	97	76	4	19.9	25.8	22.9	--	----	----	----
Hawesville	1967	1	----	----	1.2	1	----	----	38	4	37	56	46	4	12.4	15.9	14.1	4	1.0	2.7	1.8
	1968	1	----	----	1.2	1	----	----	41	4	32	58	44	4	14.8	19.4	17.0	--	----	----	----
Owensboro	1967	1	----	----	2.2	1	----	----	48	4	54	73	60	4	16.1	23.3	19.0	4	1.2	12.8	7.8
	1968	1	----	----	1.9	1	----	----	42	4	46	88	63	4	19.3	24.0	21.0	--	----	----	----
Ashland	1967	1	----	----	1.2	1	----	----	37	4	32	58	46	2	15.0	20.0	17.5	2	1.9	2.1	2.0
	1968	--	----	----	----	1	----	----	44	4	41	75	54	2	20.8	26.0	23.4	--	----	----	----
Frankfort	1967	1	----	----	1.5	1	----	----	28	4	34	47	39	3	13.1	16.1	15.1	4	1.0	2.8	1.8
	1968	1	----	----	1.3	1	----	----	35	4	36	50	41	4	15.8	22.7	18.5	--	----	----	----
Covington	1967	--	----	----	----	--	----	----	----	2	31	42	36	2	14.1	15.7	14.9	2	1.4	7.1	4.2
	1968	1	----	----	1.6	1	----	----	29	4	31	74	47	4	17.5	22.5	20.5	--	----	----	----
Henderson	1967	--	----	----	----	--	----	----	----	--	----	----	----	1	18.2	18.2	----	1	5.7	5.7	----
	1968	1	----	----	3.9	1	----	----	50	3	55	77	68	3	20.2	25.0	22.4	--	----	----	----
Paducah	1967	--	----	----	----	--	----	----	----	--	----	----	----	--	----	----	----	--	----	----	----
	1968	--	----	----	----	--	----	----	----	1	21	21	----	1	18.9	18.9	----	--	----	----	----
LOUISIANA																					
Sulfur	1967	1	----	----	1.0	1	----	----	31	3	19	36	30	3	16.3	18.8	17.7	3	1.1	1.3	1.2
	1968	1	----	----	1.6	1	----	----	29	4	23	36	27	3	18.3	21.7	20.5	--	----	----	----
Shreveport	1967	--	----	----	----	--	----	----	----	--	----	----	----	1	14.9	14.9	----	--	----	----	----
	1968	1	----	----	0.8	1	----	----	11	4	4	13	8	4	19.8	21.7	20.6	--	----	----	----
Bogalusa	1967	--	----	----	----	--	----	----	----	--	----	----	----	1	15.8	15.8	----	1	0.8	0.8	----
	1968	--	----	----	----	--	----	----	----	2	41	173	107	2	19.0	22.7	20.8	--	----	----	----
Vidalia	1967	--	----	----	----	--	----	----	----	--	----	----	----	1	14.4	14.4	----	1	0.9	0.9	----
	1968	1	----	----	2.6	1	----	----	11	4	8	11	9	4	16.7	22.4	19.4	--	----	----	----
Bastrop	1967	--	----	----	----	--	----	----	----	--	----	----	----	1	15.1	15.1	----	1	1.2	1.2	----
	1968	1	----	----	4.1	--	----	----	----	3	32	44	39	4	17.8	22.3	20.0	--	----	----	----
Tallulah	1967	--	----	----	----	--	----	----	----	--	----	----	----	--	----	----	----	--	----	----	----
	1968	1	----	----	1.4	1	----	----	6	4	2	8	4	3	18.1	20.3	19.1	--	----	----	----
New Orleans	1967	--	----	----	----	--	----	----	----	--	----	----	----	1	17.3	17.3	----	1	4.3	4.3	----
	1968	1	----	----	1.9	1	----	----	23	3	26	43	35	3	19.9	23.7	21.6	--	----	----	----
Carville	1967	--	----	----	----	--	----	----	----	--	----	----	----	1	17.2	17.2	----	1	1.2	1.2	----
	1968	1	----	----	0.8	1	----	----	23	3	17	27	21	4	17.5	23.9	21.2	--	----	----	----

Table B–1 (continued). DATA SUMMARY

State/city	Year	Fabric No. 3				Fabric No. 4				Fabric No. 5				Fabric No. 6				Fabric No. 7			
		Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean
KENTUCKY																					
Lousiville	1967	4	25.3	31.9	27.5	4	10.7	21.8	16.2	--	----	----	----	--	----	----	----	--	----	----	----
	1968	4	24.0	30.6	27.9	--	----	----	----	4	5.6	13.2	9.5	3	9.5	12.1	10.8	4	6.6	13.5	9.8
Hawesville	1967	4	15.4	21.9	19.2	3	17.6	29.3	23.0	--	----	----	----	--	----	----	----	--	----	----	----
	1968	4	19.6	21.8	20.6	--	----	----	----	4	8.3	18.3	13.7	4	4.5	6.6	5.9	4	6.1	7.7	7.1
Owensboro	1967	4	16.4	21.3	19.2	4	12.2	30.4	20.7	--	----	----	----	--	----	----	----	--	----	----	----
	1968	4	23.1	28.6	25.2	--	----	----	----	4	6.7	16.6	11.4	4	7.7	13.4	10.6	4	10.3	16.8	12.9
Ashland	1967	3	9.9	20.7	15.0	3	11.1	26.0	16.4	--	----	----	----	--	----	----	----	--	----	----	----
	1968	2	20.5	23.8	22.2	--	----	----	----	2	5.9	10.5	8.2	2	8.0	9.6	8.8	2	5.1	14.8	10.0
Frankfort	1967	4	15.0	20.4	17.6	3	18.2	28.7	23.2	--	----	----	----	--	----	----	----	--	----	----	----
	1968	4	20.4	29.3	24.1	--	----	----	----	4	8.6	16.8	12.5	4	3.8	8.0	6.0	4	4.9	11.0	8.0
Covington	1967	2	19.0	33.0	26.0	2	12.9	17.5	15.2	--	----	----	----	--	----	----	----	--	----	----	----
	1968	4	26.8	39.8	32.2	--	----	----	----	4	5.8	13.4	9.4	4	7.1	12.4	10.2	4	6.3	14.6	10.3
Henderson	1967	1	22.1	22.1	----	1	16.6	16.6	----	--	----	----	----	--	----	----	----	--	----	----	----
	1968	3	23.9	25.0	24.5	--	----	----	----	3	9.0	16.0	13.5	3	7.4	9.6	8.5	4	3.8	16.1	9.5
Paducah	1967	--	----	----	----	--	----	----	----	--	----	----	----	--	----	----	----	--	----	----	----
	1968	1	20.0	20.0	----	--	----	----	----	--	----	----	----	1	4.3	4.3	----	1	2.1	2.1	----
LOUISIANA																					
Sulfur	1967	3	13.4	22.7	18.0	2	25.6	26.8	26.2	--	----	----	----	--	----	----	----	--	----	----	----
	1968	3	21.1	25.6	23.8	--	----	----	----	4	9.8	15.5	13.5	4	3.3	8.7	5.6	4	4.6	14.3	8.6
Shreveport	1967	1	14.8	14.8	----	--	----	----	----	--	----	----	----	--	----	----	----	--	----	----	----
	1968	4	19.4	23.3	21.8	--	----	----	----	4	7.8	13.8	10.8	4	6.7	9.4	7.7	4	5.6	11.0	7.6
Bogalusa	1967	1	16.0	16.0	----	1	14.9	14.9	----	--	----	----	----	--	----	----	----	--	----	----	----
	1968	2	20.3	26.0	23.2	--	----	----	----	2	10.5	15.3	12.9	2	5.6	7.1	6.4	2	6.7	7.0	6.8
Vidalia	1967	1	13.9	13.9	----	1	15.1	15.1	----	--	----	----	----	--	----	----	----	--	----	----	----
	1968	4	19.5	21.2	20.2	--	----	----	----	4	11.9	17.1	13.8	4	5.1	8.0	6.2	4	3.9	8.1	5.5
Bastrop	1967	1	14.3	14.3	----	1	13.0	13.0	----	--	----	----	----	--	----	----	----	--	----	----	----
	1968	4	20.5	24.0	22.1	--	----	----	----	4	10.2	14.0	11.4	4	6.1	8.4	7.3	3	7.7	8.5	8.1
Talluiah	1967	--	----	----	----	--	----	----	----	--	----	----	----	--	----	----	----	--	----	----	----
	1968	3	17.0	24.6	21.8	--	----	----	----	3	8.7	12.3	10.5	2	9.9	11.0	10.4	3	6.0	12.8	9.5
New Orleans	1967	1	21.2	21.2	----	1	14.0	14.0	----	--	----	----	----	--	----	----	----	--	----	----	----
	1968	3	27.4	30.2	28.9	--	----	----	----	2	9.0	12.0	10.5	3	11.3	15.4	12.8	3	8.8	12.6	10.7
Carville	1967	1	15.1	15.1	----	1	17.2	17.2	----	--	----	----	----	--	----	----	----	--	----	----	----
	1968	4	16.3	22.9	19.8	--	----	----	----	3	11.9	15.8	13.8	4	4.1	8.5	5.6	4	3.1	6.9	5.6

Table B–1 (continued). DATA SUMMARY

State/city	Year	Fabric No. 8				Fabric No. 9				Quarterly nylon				Monthly nylon				Silver tarnishing			
		Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean
KENTUCKY																					
Louisville	1967	..	....	....	.....	..	....	....	.....	4	0	2	0.8	12	0	1	0.2	11	37	69	52
	1968	4	4.4	7.7	6.0	4	13.6	29.8	20.3	3	0	2	0.7	12	0	3	0.3	12	41	76	63
Hawesville	1967	..	....	....	.....	..	....	....	.....	4	0	5	1.2	11	0	0	0	12	33	58	43
	1968	4	5.7	16.5	9.7	4	15.6	26.5	20.4	4	0	5	1.8	12	0	0	0	12	37	58	46
Owensboro	1967	..	....	....	.....	..	....	....	.....	4	0	0	0	12	0	0	0	12	33	78	58
	1968	4	5.2	9.3	8.1	4	14.6	30.0	23.6	4	0	0	0	12	0	0	0	12	38	81	56
Ashland	1967	..	....	....	.....	..	....	....	.....	3	0	0	0	11	0	0	0	12	47	91	73
	1968	2	5.5	7.6	6.6	2	22.1	24.9	23.5	3	0	0	0	11	0	0	0	12	41	88	77
Frankfort	1967	..	....	....	.....	..	....	....	.....	4	0	0	0	12	0	0	0	12	24	61	45
	1968	4	8.0	10.6	8.8	4	10.3	27.5	17.4	4	0	0	0	12	0	0	0	12	23	74	46
Covington	1967	..	....	....	.....	..	....	....	.....	2	0	1	0.5	5	0	1	.....	5	41	66	.....
	1968	4	5.4	9.7	8.0	4	13.4	28.7	19.9	4	0	2	0.5	11	0	0	0	12	33	78	52
Henderson	1967	..	....	....	.....	..	....	....	.....	1	0	0	.....	4	0	0	.....	4	51	86	.....
	1968	3	7.1	12.0	9.3	3	18.8	31.2	24.0	3	0	1	0.3	11	0	0	0	12	30	84	59
Paducah	1967	..	....	....	.....	..	....	....	.....	..	....	....	.....	...	....	....	.....	...	....	....	.....
	1968	1	5.6	5.6	.....	1	40.7	40.7	.....	1	0	0	.....	1	0	0	.....	...	....	....	.....
LOUISIANA																					
Sulfur	1967	..	....	....	.....	..	....	....	.....	3	0	0	0	9	0	0	0	9	53	81	64
	1968	3	5.6	8.6	7.4	4	19.0	29.7	24.6	4	0	3	1.5	10	0	2	0.2	12	44	73	58
Shreveport	1967	..	....	....	.....	..	....	....	.....	..	....	....	.....	2	0	0	.....	2	71	88	.....
	1968	4	5.7	9.5	7.0	4	17.4	31.8	23.6	4	0	0	0	12	0	0	0	12	45	85	65
Bogalusa	1967	..	....	....	.....	..	....	....	.....	..	....	....	.....	2	0	0	.....	2	85	90	.....
	1968	2	5.4	9.5	7.4	2	22.0	34.6	28.3	2	0	0	0	7	0	0	0	8	62	93	82
Vidalia	1967	..	....	....	.....	..	....	....	.....	..	....	....	.....	2	0	0	.....	2	78	79	.....
	1968	4	5.7	8.4	7.4	3	16.3	26.0	21.4	4	0	0	0	12	0	0	0	12	39	94	76
Bastrap	1967	..	....	....	.....	..	....	....	.....	..	....	....	.....	2	0	0	.....	2	78	87	.....
	1968	4	4.7	11.5	7.9	4	16.5	33.9	23.6	4	0	0	0	12	0	2	0.2	12	56	90	77
Tallalah	1967	..	....	....	.....	..	....	....	.....	..	....	....	.....	...	....	....	.....	...	....	....	.....
	1968	3	4.6	10.9	7.6	3	18.7	34.3	25.2	4	0	0	0	12	0	1	0.1	12	13	74	40
New Orleans	1967	..	....	....	.....	..	....	....	.....	..	....	....	.....	2	0	0	.....	2	74	79	.....
	1968	3	8.3	10.2	9.4	3	27.8	34.9	31.4	4	0	0	0	11	0	0	0	12	73	91	85
Carville	1967	..	....	....	.....	..	....	....	.....	..	....	....	.....	2	0	0	.....	1	68	68	.....
	1968	4	3.8	12.4	7.4	4	17.1	29.6	23.7	4	0	6	1.5	11	0	8	1.2	12	34	83	65

Table B–1 (continued). DATA SUMMARY

State/city	Year	Lead peroxide candle				Lead plates				Dustfall				Sticky paper				Rubber cracking			
		Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean
KENTUCKY																					
Louisville	1967	12	0.7	2.2	1.5	...	....	....	.....	12	1.7	12.0	8.2	12	16	64	38	52	0	.239	.081
	1968	12	0.9	2.8	1.5	11	7	19	11	12	2.8	12.1	9.1	11	31	72	47	50	0	.235	.064
Hawesville	1967	11	0.2	0.6	0.3	...	....	....	.....	12	1.2	10.8	3.9	12	0	46	10	50	0	.514	.155
	1968	11	0.0	1.0	0.3	10	0	4	2	11	1.7	3.3	2.5	12	1	28	7	49	0	.436	.124
Owensboro	1967	12	0.3	2.8	1.2	...	....	....	.....	12	4.0	8.0	5.6	12	8	57	26	48	0	.386	.125
	1968	12	0.0	2.9	1.1	12	2	17	8	11	3.8	8.4	6.1	12	9	55	30	50	0	.241	.076
Ashland	1967	12	0.0	0.7	0.4	...	....	....	.....	12	3.5	11.2	5.9	12	5	42	20	49	0	.345	.094
	1968	12	0.0	0.8	0.4	12	0	5	3	12	3.5	9.4	6.4	12	3	55	23	51	0	.405	.082
Frankfort	1967	12	0.0	0.4	0.2	...	....	....	.....	12	1.2	4.5	2.3	12	0	20	7	48	0	.456	.133
	1968	11	0.0	0.9	0.3	12	0	6	2	12	1.4	31.7	4.6	12	1	28	9	51	0	.388	.091
Covington	1967	5	0.4	0.9	.....	...	....	....	.....	5	2.9	9.1	.....	5	12	36	.....	20	0	.285	.....
	1968	12	0.0	1.5	0.7	11	1	10	4	12	2.3	7.6	4.8	12	6	66	31	50	0	.235	.078
Henderson	1967	4	0.5	2.4	.....	...	....	....	.....	4	3.6	7.8	.....	5	18	41	.....	19	0	.466	.....
	1968	12	0.0	2.7	1.2	10	2	18	9	12	2.8	18.4	6.2	12	7	65	34	52	0	.290	.088
Paducah	1967	...	....	....	.....	...	....	....	.....	...	....	....	.....	...	....	....	.....	...	....	....	.....
	1968	...	....	....	.....	...	....	....	.....	...	....	....	.....	...	....	....	.....	...	....	....	.....
LOUISIANA																					
Sulfur	1967	9	0.0	0.1	0.0	...	....	....	.....	9	1.6	14.5	4.5	10	1	11	4	40	0	.428	.105
	1968	12	0.0	0.2	0.0	12	0	3	1	12	1.7	7.4	4.0	12	1	25	7	52	0	.363	.082
Shreveport	1967	2	0.1	0.1	.....	...	....	....	.....	2	2.3	3.2	.....	3	18	50	.....	8	0	0	.....
	1968	12	0.0	0.1	0.0	12	0	1	0	10	1.8	10.1	5.3	11	1	51	23	40	0	.272	.075
Bogalusa	1967	2	0.1	0.4	.....	...	....	....	.....	2	4.3	8.4	.....	2	20	31	.....	8	0	.280	.....
	1968	8	0.0	0.9	0.4	6	0	4	2	8	2.9	9.6	5.8	5	4	46	25	28	0	.295	.066
Vidalia	1967	2	0.0	0.2	.....	...	....	....	.....	2	2.3	3.4	.....	2	5	17	.....	7	0	.201	.....
	1968	12	0.0	0.2	0.0	11	0	1	0	12	1.9	4.5	3.0	11	2	36	13	45	0	.396	.129
Bastrop	1967	2	0.2	0.3	.....	...	....	....	.....	2	10.7	11.4	.....	2	17	41	.....	6	0	.074	.....
	1968	12	0.0	0.4	0.1	12	0	2	1	12	3.9	26.0	12.5	12	1	54	24	50	0	.290	.084
Tallulah	1967	...	....	....	.....	...	....	....	.....	...	....	....	.....	...	....	....	.....	...	....	....	.....
	1968	12	0.0	0.1	0.1	12	0	2	0	11	5.0	9.7	7.5	12	2	52	30	51	0	.370	.080
New Orleans	1967	2	0.3	0.3	.....	...	....	....	.....	2	3.2	5.5	.....	2	37	53	.....	9	0	.126	.....
	1968	12	0.0	0.6	0.3	10	2	4	3	12	1.0	6.8	4.6	11	6	68	47	46	0	.472	.100
Carville	1967	2	0.0	0.2	.....	...	....	....	.....	2	1.2	1.6	.....	2	4	16	.....	9	0	.360	.....
	1968	12	0.0	0.2	0.1	11	0	1	1	12	0.8	5.1	2.0	12	1	15	4	51	0	.310	.094

Table B–1 (continued). DATA SUMMARY

State/city	Year	Zinc				Annual steel				Quarterly steel				Fabric No. 1				Fabric No. 2			
		Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean
MAINE																					
Eliot	1967	..	....	....	....	..	....	....	....	1	13	13	....	1	17.8	17.8	....	1	0.5	0.5	....
	1968	1	....	....	5.0	..	....	....	....	3	51	53	52	4	15.7	20.9	18.8	..	....	....	....
Madawaska	1967	..	....	....	....	..	....	....	....	..	....	....	....	..	....	....	....	..	....	....	....
	1968	..	....	....	....	..	....	....	....	2	71	151	111	2	17.4	21.4	19.4	..	....	....	....
MARYLAND																					
Cheverly	1967	1	....	....	4.0	..	....	....	....	3	49	75	63	4	12.2	16.9	15.6	4	1.3	3.9	3.0
	1968	1	....	....	4.2	1	....	....	37	2	40	63	52	2	15.0	20.4	17.7	..	....	....	....
Cumberland	1967	..	....	....	....	..	....	....	....	2	52	68	60	2	15.7	15.9	15.8	2	1.3	3.2	2.2
	1968	1	....	....	2.2	1	....	....	35	4	36	58	46	3	17.0	20.0	18.3	..	....	....	....
Bloomington	1967	..	....	....	....	..	....	....	....	2	58	79	68	2	18.1	18.2	18.2	2	2.3	2.5	2.4
	1968	1	....	....	1.6	1	....	....	53	4	66	112	81	4	15.8	21.1	18.8	..	....	....	....
MASSACHUSETTS																					
Lawrence	1967	..	....	....	....	..	....	....	....	1	64	64	....	1	15.9	15.9	....	1	1.4	1.4	....
	1968	1	....	....	2.7	1	....	....	50	4	64	86	73	3	16.8	18.9	18.6	..	....	....	....
Springfield	1967	..	....	....	....	..	....	....	....	1	84	84	....	1	16.5	16.5	....	1	4.1	4.1	....
	1968	1	....	....	4.6	1	....	....	44	4	65	88	74	4	17.5	20.3	18.8	..	....	....	....
Attleboro	1967	..	....	....	....	..	....	....	....	1	61	61	....	1	17.5	17.5	....	1	2.0	2.0	....
	1968	1	....	....	6.0	1	....	....	51	4	74	90	82	3	16.3	22.1	18.6	..	....	....	....
Fall River	1967	..	....	....	....	..	....	....	....	1	84	84	....	1	18.0	18.0	....	1	4.8	4.8	....
	1968	1	....	....	5.5	1	....	....	52	4	75	98	82	4	19.3	23.9	21.9	..	....	....	....
Boston	1967	..	....	....	....	..	....	....	....	1	85	85	....	1	16.1	16.1	....	1	3.4	3.4	....
	1968	1	....	....	4.8	1	....	....	52	4	51	111	87	3	17.2	23.0	20.5	..	....	....	....
MICHIGAN																					
Detroit	1967	1	....	....	2.8	1	....	....	49	4	63	83	74	4	14.2	17.7	16.3	4	3.9	8.2	5.8
	1968	1	....	....	3.7	1	....	....	51	4	69	90	75	4	16.7	21.3	19.4	..	....	....	....
River Rouge	1967	1	....	....	2.6	1	....	....	41	4	57	75	66	4	18.9	22.7	17.5	4	3.0	6.2	4.6
	1968	1	....	....	5.7	..	....	....	....	4	75	79	77	3	19.9	23.0	21.5	..	....	....	....
Grosse Ile	1967	..	....	....	....	..	....	....	....	1	56	56	....	1	18.6	18.6	....	1	2.4	2.4	....
	1968	..	....	....	....	1	....	....	48	4	39	85	64	3	21.7	23.2	22.6	..	....	....	....
Livonia	1967	..	....	....	....	..	....	....	....	..	....	....	....	..	....	....	....	..	....	....	....
	1968	1	....	....	2.8	1	....	....	37	4	45	56	50	3	19.0	23.8	21.0	..	....	....	....
Sumpter Township	1967	..	....	....	....	..	....	....	....	1	31	31	....	1	10.3	10.3	....	1	0.9	0.9	....
	1968	..	....	....	....	1	....	....	40	2	41	53	47	2	17.7	18.9	18.3	..	....	....	....

Table B–1 (continued). DATA SUMMARY

State/city	Year	Fabric No. 3				Fabric No. 4				Fabric No. 5				Fabric No. 6				Fabric No. 7			
		Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean
MAINE																					
Eliot	1967	1	20.3	20.3	-----	1	26.2	26.2	-----	--	----	----	-----	--	----	----	-----	--	----	----	-----
	1968	4	21.2	25.1	22.6	--	----	----	-----	4	11.4	15.1	13.2	4	3.9	6.5	4.9	4	2.4	7.2	4.8
Madawaska	1967	--	----	----	-----	--	----	----	-----	--	----	----	-----	--	----	----	-----	--	----	----	-----
	1968	1	20.7	20.7	-----	--	----	----	-----	2	9.1	10.4	9.8	2	11.3	17.0	14.2	2	9.6	12.1	10.8
MARYLAND																					
Cheverly	1967	4	28.3	34.3	31.0	3	10.4	28.9	20.4	--	----	----	-----	--	----	----	-----	--	----	----	-----
	1968	2	37.5	45.4	41.4	--	----	----	-----	2	8.4	15.2	11.8	3	5.5	10.6	8.8	2	5.7	8.5	7.1
Cumberland	1967	2	18.2	26.9	22.6	2	11.7	16.9	14.3	--	----	----	-----	--	----	----	-----	--	----	----	-----
	1968	3	26.1	41.7	31.6	--	----	----	-----	2	12.6	15.2	13.9	4	9.2	17.3	12.0	4	5.5	13.0	8.9
Bloomington	1967	2	11.3	21.3	16.3	1	14.9	14.9	-----	--	----	----	-----	--	----	----	-----	--	----	----	-----
	1968	3	19.6	22.8	21.6	--	----	----	-----	3	9.2	14.1	11.6	4	7.2	8.6	7.9	3	2.4	9.7	6.9
MASSACHUSETTS																					
Lawrence	1967	1	38.9	38.9	-----	1	12.7	12.7	-----	--	----	----	-----	--	----	----	-----	--	----	----	-----
	1968	4	28.2	37.3	31.5	--	----	----	-----	4	8.2	13.2	10.8	3	7.6	10.9	9.4	4	2.5	12.4	7.2
Springfield	1967	1	40.0	40.0	-----	1	14.2	14.2	-----	--	----	----	-----	--	----	----	-----	--	----	----	-----
	1968	4	39.6	43.6	41.7	--	----	----	-----	3	6.9	11.8	10.1	4	9.5	14.9	12.4	4	8.5	15.7	12.2
Attleboro	1967	1	44.2	44.2	-----	1	23.8	23.8	-----	--	----	----	-----	--	----	----	-----	--	----	----	-----
	1968	3	49.8	51.6	50.8	--	----	----	-----	3	9.1	15.3	11.4	3	6.2	12.4	10.0	3	2.7	9.7	7.2
Fall River	1967	1	38.2	38.2	-----	1	23.4	23.4	-----	--	----	----	-----	--	----	----	-----	--	----	----	-----
	1968	3	38.2	45.0	42.5	--	----	----	-----	3	7.9	15.7	12.9	4	9.8	15.8	12.2	3	5.2	18.6	11.1
Boston	1967	1	44.2	44.2	-----	1	19.2	19.2	-----	--	----	----	-----	--	----	----	-----	--	----	----	-----
	1968	3	37.4	41.0	39.8	--	----	----	-----	3	4.8	11.8	8.9	3	11.3	16.0	13.7	3	4.8	13.9	7.8
MICHIGAN																					
Detroit	1967	4	24.5	40.7	32.0	4	12.9	24.2	17.5	--	----	----	-----	--	----	----	-----	--	----	----	-----
	1968	4	30.5	41.5	35.6	--	----	----	-----	4	6.6	13.5	9.6	4	8.6	16.5	12.1	4	9.1	18.1	13.4
River Rouge	1967	4	18.0	28.3	24.0	4	9.6	22.3	15.4	--	----	----	-----	--	----	----	-----	--	----	----	-----
	1968	3	29.5	38.5	33.5	--	----	----	-----	3	8.4	13.9	11.1	3	9.9	13.6	12.4	3	5.0	24.2	12.8
Grosse Ile	1967	1	23.7	23.7	-----	1	16.3	16.3	-----	--	----	----	-----	--	----	----	-----	--	----	----	-----
	1968	3	25.4	28.5	26.5	--	----	----	-----	2	7.0	15.5	11.2	3	5.0	11.6	9.0	3	7.3	7.5	7.4
Livonia	1967	--	----	----	-----	--	----	----	-----	--	----	----	-----	--	----	----	-----	--	----	----	-----
	1968	3	25.8	28.5	27.4	--	----	----	-----	3	8.0	13.4	11.5	3	8.9	10.2	9.7	3	6.3	9.9	7.6
Sumpter Township	1967	1	15.8	15.8	-----	1	19.3	19.3	-----	--	----	----	-----	--	----	----	-----	--	----	----	-----
	1968	2	21.1	21.8	21.4	--	----	----	-----	2	11.3	16.7	14.0	2	5.6	10.9	8.2	2	8.5	10.1	9.3

Table B–1 (continued). DATA SUMMARY

State/city	Year	Fabric No. 8				Fabric No. 9				Quarterly nylon				Monthly nylon				Silver tarnishing			
		Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean
MAINE																					
Eliot	1967	..	....	....	.....	..	....	....	.....	1	2	2	.....	3	0	1	.....	3	28	40	.....
	1968	4	8.6	15.5	11.8	4	7.7	22.8	16.4	4	2	7	3.5	10	0	0	0	9	23	48	35
Madawaska	1967	..	....	....	.....	..	....	....	.....	..	....	....	.....	2	0	0	.....	2	33	41	.....
	1968	2	7.6	9.1	8.4	2	14.2	34.0	24.1	1	1	1	.....	4	0	0	.....	6	23	52	36
MARYLAND																					
Cheverly	1967	..	....	....	.....	..	....	....	.....	1	0	0	.....	7	0	26	4.0	8	60	80	69
	1968	1	9.5	9.5	.....	2	27.6	28.7	28.2	4	0	0	0	11	0	3	0.4	10	37	84	58
Cumberland	1967	..	....	....	.....	..	....	....	.....	2	0	5	2.5	5	0	1	.....	4	67	81	.....
	1968	3	5.0	7.7	6.7	4	10.2	30.1	21.4	4	0	2	0.5	12	0	1	0.1	12	46	84	70
Bloomington	1967	..	....	....	.....	..	....	....	.....	2	0	0	0	4	0	0	.....	4	84	98	.....
	1968	4	6.6	11.4	9.2	4	13.1	29.0	19.8	4	0	4	1.0	12	0	1	0.1	12	48	95	83
MASSACHUSETTS																					
Lawrence	1967	..	....	....	.....	..	....	....	.....	1	3	3	.....	3	0	1	.....	3	28	40	.....
	1968	4	8.2	13.4	10.0	3	14.3	23.2	17.9	3	0	0	0	11	0	1	0.1	12	31	68	50
Springfield	1967	..	....	....	.....	..	....	....	.....	1	80	80	.....	3	12	24	.....	2	42	55	.....
	1968	4	5.4	13.8	9.5	4	12.5	36.1	23.4	4	0	48	17.0	11	0	20	5.0	11	37	75	54
Attleboro	1967	..	....	....	.....	..	....	....	.....	1	11	11	.....	3	0	3	.....	3	41	70	.....
	1968	3	10.6	20.0	15.3	3	17.6	41.8	25.9	4	0	12	5.8	12	0	3	1.0	12	43	70	57
Fall River	1967	..	....	....	.....	..	....	....	.....	1	6	6	.....	3	0	3	.....	3	31	51	.....
	1968	4	11.6	18.6	14.1	4	20.0	31.6	25.9	4	0	6	4.2	11	0	2	0.4	12	27	77	52
Boston	1967	..	....	....	.....	..	....	....	.....	1	39	39	.....	3	5	8	.....	3	51	61	.....
	1968	3	7.4	10.1	8.8	3	23.9	27.9	26.4	4	0	26	14.5	12	0	10	3.5	12	39	84	61
MICHIGAN																					
Detroit	1967	..	....	....	.....	..	....	....	.....	3	0	1	0.3	11	0	0	0	12	61	90	75
	1968	3	9.3	11.6	10.4	4	12.9	29.1	21.7	4	0	4	2.3	12	0	2	0.2	12	48	88	72
River Rouge	1967	..	....	....	.....	..	....	....	.....	3	0	1	0.3	12	0	0	0	12	47	88	72
	1968	3	7.5	11.0	9.0	3	21.4	34.8	26.2	3	0	1	0.3	12	0	2	0.2	12	49	92	71
Grosse Ile	1967	..	....	....	.....	..	....	....	.....	1	0	0	.....	4	0	0	.....	4	60	78	.....
	1968	3	6.5	11.2	8.8	3	13.8	29.0	21.3	3	0	0	0	11	0	0	0	11	48	78	62
Livonia	1967	..	....	....	.....	..	....	....	.....	..	....	....	.....	...	....	....	.....	...	....	....	.....
	1968	3	4.7	8.7	7.4	3	13.2	35.7	24.0	4	0	0	0	12	0	0	0	11	48	73	59
Sumpter Township	1967	..	....	....	.....	..	....	....	.....	1	0	0	.....	3	0	0	.....	3	30	49	.....
	1968	2	8.5	14.5	11.5	2	13.1	25.0	19.0	3	0	3	1.0	10	0	0	0	10	34	61	46

Table B–1 (continued). DATA SUMMARY

State/city	Year	Lead peroxide candle				Lead plates				Dustfall				Sticky paper				Rubber cracking			
		Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean
MAINE																					
Eliot	1967	2	0.4	0.5	.....	...	.....	.....	.....	2	1.2	1.2	.....	3	3	9	.....	12	0	.182	.....
	1968	10	0.0	0.5	0.3	10	0	3	2	10	0.8	2.3	1.3	9	2	20	7	37	0	.249	.066
Madawaska	1967	2	2.3	3.1	.....	...	.....	.....	.....	2	5.6	5.8	.....	2	13	20	.....	7	0	0	.....
	1968	6	1.2	3.6	2.3	4	11	20	.....	6	6.5	14.5	9.8	5	9	46	.....	21	0	.242	.....
MARYLAND																					
Cheverly	1967	11	0.4	1.8	1.4	...	.....	.....	.....	11	1.6	6.4	4.4	11	4	46	28	32	0	.365	.096
	1968	9	0.0	2.1	1.1	10	0	14	5	10	2.2	4.7	3.8	4	31	47	.....	21	0	.312	.....
Cumberland	1967	4	0.5	2.4	.....	...	.....	.....	.....	5	0.5	2.4	.....	5	7	27	.....	19	0	.239	.....
	1968	11	0.4	3.4	1.2	11	2	20	8	12	2.0	4.9	3.4	11	2	59	30	48	0	.247	.076
Bloomington	1967	5	0.4	1.1	.....	...	.....	.....	.....	5	4.3	16.7	.....	...	.....	.....	.....	18	0	.184	.....
	1968	12	0.2	1.4	0.6	1	2	9	4	12	2.1	20.8	8.2	11	5	59	38	49	0	.285	.068
MASSACHUSETTS																					
Lawrence	1967	3	0.6	1.0	.....	...	.....	.....	.....	3	1.7	2.1	.....	5	9	36	.....	10	0	0	.....
	1968	12	0.3	1.4	0.8	10	2	10	6	11	1.4	6.7	3.3	12	16	64	34	52	0	.363	.068
Springfield	1967	3	1.7	2.4	.....	...	.....	.....	.....	3	7.8	23.5	.....	3	27	50	.....	10	0	0	.....
	1968	11	0.8	3.1	1.7	11	5	17	10	10	3.3	16.9	7.6	12	23	78	48	50	0	.194	.047
Attleboro	1967	3	1.0	1.8	.....	...	.....	.....	.....	3	3.4	4.3	.....	4	20	35	.....	12	0	0	.....
	1968	12	0.4	2.5	1.2	12	3	19	8	12	1.3	5.4	3.1	11	6	65	41	49	0	.401	.074
Fall River	1967	3	1.2	2.2	.....	...	.....	.....	.....	3	3.6	6.3	.....	4	42	58	.....	14	0	.117	.....
	1968	11	0.4	3.5	1.5	12	4	34	12	11	0.2	7.0	4.2	12	38	71	51	52	0	.356	.075
Boston	1967	3	2.6	3.5	.....	...	.....	.....	.....	3	4.5	10.5	.....	4	22	57	.....	9	0	.149	.....
	1968	11	1.0	4.7	2.4	11	5	38	18	11	3.0	9.8	6.0	7	13	72	51	37	0	.290	.057
MICHIGAN																					
Detroit	1967	12	0.8	2.0	1.4	...	.....	.....	.....	12	5.1	17.5	10.7	12	25	71	44	52	0	.363	.078
	1968	11	1.0	2.9	1.4	11	6	20	12	12	3.1	18.2	10.3	12	31	77	57	52	0	.265	.058
River Rouge	1967	12	0.7	1.9	1.3	...	.....	.....	.....	12	9.9	19.3	13.5	12	35	72	56	49	0	.378	.072
	1968	12	0.7	2.3	1.3	9	6	15	10	12	6.5	27.3	12.2	10	45	80	64	47	0	.300	.063
Grosse Ile	1967	3	1.1	1.4	.....	...	.....	.....	.....	3	8.7	11.1	.....	2	24	46	.....	18	0	.252	.....
	1968	9	0.1	1.4	1.0	11	4	18	9	10	3.6	12.3	6.8	8	13	71	46	38	0	.410	.113
Livonia	1967	...	.....	.....	.....	...	.....	.....	.....	...	.....	.....	.....	...	.....	.....	.....	16	0	.393	.....
	1968	11	0.3	1.0	0.6	12	1	7	4	12	3.5	15.1	6.1	12	12	59	31	51	0	.290	.071
Sumpter Township	1967	3	0.3	0.6	.....	...	.....	.....	.....	3	2.1	3.9	.....	4	3	10	.....	...	.....	.....	.....
	1968	11	0.0	0.8	0.4	10	0	7	3	10	1.8	13.3	3.6	6	2	19	10	33	0	.438	.142

Table B–1 (continued). DATA SUMMARY

State/city	Year	Zinc				Annual steel				Quarterly steel				Fabric No. 1				Fabric No. 2			
		Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean
MICHIGAN (continued)																					
Port Huron	1967	..	....	....	....	..	....	....	....	1	67	67	....	1	22.3	22.3	....	1	3.9	3.9	....
	1968	1	....	....	3.3	1	....	....	30	4	63	89	72	4	18.0	22.9	21.1	..	....	....	....
St. Clair	1967	..	....	....	....	..	....	....	....	1	52	52	....	1	17.3	17.3	....	1	1.2	1.2	....
	1968	1	....	....	2.6	1	....	....	56	4	53	115	84	3	17.4	22.0	20.1	..	....	....	....
Dearborn	1967	..	....	....	....	..	....	....	....	..	....	....	....	..	....	....	....	..	....	....	....
	1968	..	....	....	....	..	....	....	....	..	....	....	....	..	....	....	....	..	....	....	....
Sault St. Marie	1967	..	....	....	....	..	....	....	....	..	....	....	....	1	13.9	13.9	....	1	1.1	1.1	....
	1968	1	....	....	1.8	..	....	....	....	3	33	49	41	4	16.8	23.7	20.2	..	....	....	....
Ann Arbor	1967	..	....	....	....	..	....	....	....	..	....	....	....	..	....	....	....	..	....	....	....
	1968	1	....	....	1.6	1	....	....	34	4	32	39	34	3	16.8	20.0	18.4	..	....	....	....
MINNESOTA																					
Duluth	1967	1	....	....	0.9	1	....	....	22	4	7	29	19	4	13.7	17.3	15.5	4	1.0	10.7	4.5
	1968	1	....	....	1.6	1	....	....	25	4	22	25	23	4	17.0	24.6	19.8	..	....	....	....
Winona	1967	..	....	....	....	..	....	....	....	..	....	....	....	..	....	....	....	..	....	....	....
	1968	1	....	....	0.9	1	....	....	29	3	24	38	33	3	16.9	20.4	18.5	..	....	....	....
E. Grand Forks	1967	..	....	....	....	..	....	....	....	..	....	....	....	..	....	....	....	..	....	....	....
	1968	..	....	....	....	..	....	....	....	2	2	4	3	3	17.2	20.5	18.7	..	....	....	....
Moorhead	1967	..	....	....	....	..	....	....	....	..	....	....	....	..	....	....	....	..	....	....	....
	1968	..	....	....	....	..	....	....	....	1	12	12	....	2	11.6	18.2	14.9	..	....	....	....
Ortonville	1967	..	....	....	....	..	....	....	....	..	....	....	....	..	....	....	....	..	....	....	....
	1968	..	....	....	....	..	....	....	....	2	7	21	14	1	14.3	14.3	....	..	....	....	....
International Falls	1967	..	....	....	....	..	....	....	....	..	....	....	....	..	....	....	....	..	....	....	....
	1968	..	....	....	....	..	....	....	....	2	94	147	120	2	18.5	20.0	19.2	..	....	....	....
MISSISSIPPI																					
Pascagoula	1967	..	....	....	....	..	....	....	....	..	....	....	....	..	....	....	....	..	....	....	....
	1968	1	....	....	0.9	..	....	....	....	1	50	50	....	1	24.5	24.5	....	..	....	....	....
Natchez	1967	..	....	....	....	..	....	....	....	..	....	....	....	..	....	....	....	..	....	....	....
	1968	1	....	....	2.7	1	....	....	12	2	5	16	10	1	22.0	22.0	....	..	....	....	....
Vicksburg	1967	..	....	....	....	..	....	....	....	..	....	....	....	..	....	....	....	..	....	....	....
	1968	1	....	....	0.6	1	....	....	4	3	1	60	21	..	....	....	....	..	....	....	....
Jackson	1967	..	....	....	....	..	....	....	....	..	....	....	....	..	....	....	....	..	....	....	....
	1968	..	....	....	....	..	....	....	....	2	2	2	....	1	14.5	14.5	....	..	....	....	....

Table B–1 (continued). DATA SUMMARY

State/city	Year	Fabric No. 3				Fabric No. 4				Fabric No. 5				Fabric No. 6				Fabric No. 7			
		Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean
MICHIGAN (continued)																					
Port Huron	1967	1	25.6	25.6	.....	1	15.8	15.8	.....	..	.....	.....	.....	..	.....	.....	.....	..	.....	.....	.....
	1968	4	20.8	25.7	24.1	..	.....	.....	.....	3	8.6	14.1	12.1	4	7.9	12.3	9.8	4	6.6	12.3	9.3
St. Clair	1967	1	19.9	19.9	.....	1	18.9	18.9	.....	..	.....	.....	.....	..	.....	.....	.....	..	.....	.....	.....
	1968	4	19.6	25.8	23.4	..	.....	.....	.....	4	7.5	16.2	12.0	4	4.7	8.3	6.8	4	3.7	8.5	6.1
Dearborn	1967	..	.....	.....	.....	..	.....	.....	.....	..	.....	.....	.....	..	.....	.....	.....	..	.....	.....	.....
	1968	..	.....	.....	.....	..	.....	.....	.....	..	.....	.....	.....	..	.....	.....	.....	..	.....	.....	.....
Sault St. Marie	1967	..	.....	.....	.....	..	.....	.....	.....	..	.....	.....	.....	..	.....	.....	.....	..	.....	.....	.....
	1968	4	20.7	25.0	22.4	..	.....	.....	.....	4	10.6	13.7	11.8	4	9.9	11.2	10.6	4	7.2	13.4	10.6
Ann Arbor	1967	..	.....	.....	.....	..	.....	.....	.....	..	.....	.....	.....	..	.....	.....	.....	..	.....	.....	.....
	1968	3	20.8	23.9	22.4	..	.....	.....	.....	3	7.4	14.6	11.9	3	7.1	8.0	7.6	3	4.3	8.7	6.3
MINNESOTA																					
Duluth	1967	4	11.5	26.0	17.4	4	11.8	22.9	16.0	..	.....	.....	.....	..	.....	.....	.....	..	.....	.....	.....
	1968	4	16.7	23.6	20.4	..	.....	.....	.....	4	6.4	10.3	8.5	4	6.9	11.9	9.2	3	7.7	15.7	11.9
Winona	1967	..	.....	.....	.....	..	.....	.....	.....	..	.....	.....	.....	..	.....	.....	.....	..	.....	.....	.....
	1968	3	15.7	20.9	18.8	..	.....	.....	.....	3	6.5	13.2	10.7	3	6.5	6.7	6.6	3	4.5	9.8	6.8
E. Grand Forks	1967	..	.....	.....	.....	..	.....	.....	.....	..	.....	.....	.....	..	.....	.....	.....	..	.....	.....	.....
	1968	3	12.6	19.5	16.4	..	.....	.....	.....	2	6.8	10.2	8.5	3	5.3	7.0	6.3	2	7.6	12.2	9.9
Moorhead	1967	..	.....	.....	.....	..	.....	.....	.....	..	.....	.....	.....	..	.....	.....	.....	..	.....	.....	.....
	1968	2	17.5	17.7	17.6	..	.....	.....	.....	1	7.0	7.0	.....	2	4.3	9.0	6.6	1	11.9	11.9	.....
Ortonville	1967	..	.....	.....	.....	..	.....	.....	.....	..	.....	.....	.....	..	.....	.....	.....	..	.....	.....	.....
	1968	1	11.6	11.6	.....	..	.....	.....	.....	1	8.9	8.9	.....	1	2.2	2.2	.....	..	.....	.....	.....
International Falls	1967	..	.....	.....	.....	..	.....	.....	.....	..	.....	.....	.....	..	.....	.....	.....	..	.....	.....	.....
	1968	2	14.4	17.6	16.0	..	.....	.....	.....	2	4.7	7.7	6.2	1	6.9	6.9	.....	2	10.4	11.1	10.8
MISSISSIPPI																					
Pascagoula	1967	..	.....	.....	.....	..	.....	.....	.....	..	.....	.....	.....	..	.....	.....	.....	..	.....	.....	.....
	1968	1	21.4	21.4	.....	..	.....	.....	.....	1	16.9	16.9	.....	1	5.4	5.4	.....	1	3.5	3.5	.....
Natchez	1967	..	.....	.....	.....	..	.....	.....	.....	..	.....	.....	.....	..	.....	.....	.....	..	.....	.....	.....
	1968	1	21.9	21.9	.....	..	.....	.....	.....	1	12.0	12.0	.....	..	.....	.....	.....	..	.....	.....	.....
Vicksburg	1967	..	.....	.....	.....	..	.....	.....	.....	..	.....	.....	.....	..	.....	.....	.....	..	.....	.....	.....
	1968	..	.....	.....	.....	..	.....	.....	.....	..	.....	.....	.....	..	.....	.....	.....	..	.....	.....	.....
Jackson	1967	..	.....	.....	.....	..	.....	.....	.....	..	.....	.....	.....	..	.....	.....	.....	..	.....	.....	.....
	1968	1	21.7	21.7	.....	..	.....	.....	.....	..	.....	.....	.....	1	9.5	9.5	.....	1	9.1	9.1	.....

Table B–1 (continued). DATA SUMMARY

State/city	Year	Fabric No. 8				Fabric No. 9				Quarterly nylon				Monthly nylon				Silver tarnishing			
		Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean
MICHIGAN (continued)																					
Port Huron	1967	..	....	....	....	..	....	....	....	1	0	0	....	4	0	0	....	3	60	88	....
	1968	4	5.7	10.9	8.4	4	15.1	28.9	21.8	4	0	0	0	12	0	0	0	12	57	85	70
St. Clair	1967	..	....	....	....	..	....	....	....	1	0	0	....	4	0	0	....	3	32	54	....
	1968	3	4.4	9.1	7.3	3	13.6	31.1	22.1	3	0	1	0.3	12	0	0	0	12	37	75	52
Dearborn	1967	..	....	....	....	..	....	....	....	..	....	....	....	...	....	....	....	...	....	....	....
	1968	..	....	....	....	..	....	....	....	..	....	....	....	...	....	....	....	...	....	....	....
Sault St. Marie	1967	..	....	....	....	..	....	....	....	..	....	....	....	1	0	0	....	1	77	77	....
	1968	3	8.0	12.7	10.7	4	10.0	24.8	17.6	4	0	0	0	11	0	0	0	12	49	90	68
Ann Arbor	1967	..	....	....	....	..	....	....	....	..	....	....	....	...	....	....	....	...	....	....	....
	1968	3	4.9	9.7	7.4	3	14.7	27.5	20.9	4	0	1	0.2	9	0	0	0	8	35	63	48
MINNESOTA																					
Duluth	1967	..	....	....	....	..	....	....	....	4	0	0	0	12	0	0	0	12	24	74	46
	1968	4	4.9	8.8	6.7	4	12.2	28.1	18.1	4	0	0	0	12	0	0	0	12	22	66	41
Winona	1967	..	....	....	....	..	....	....	....	..	....	....	....	...	....	....	....	...	....	....	....
	1968	3	4.2	7.6	6.2	3	9.9	31.1	21.9	4	0	4	1.2	11	0	3	0.5	11	8	60	34
E. Grand Forks	1967	..	....	....	....	..	....	....	....	..	....	....	....	...	....	....	....	...	....	....	....
	1968	3	5.9	19.6	11.2	3	10.4	21.6	16.3	3	0	0	0	6	0	0	0	7	17	33	22
Moorhead	1967	..	....	....	....	..	....	....	....	..	....	....	....	...	....	....	....	...	....	....	....
	1968	2	5.4	9.7	7.6	2	8.8	10.9	9.8	2	0	0	0	7	0	0	0	7	18	35	27
Ortonville	1967	..	....	....	....	..	....	....	....	..	....	....	....	...	....	....	....	...	....	....	....
	1968	1	4.4	4.4	....	2	10.2	11.4	10.8	2	0	0	0	7	0	0	0	7	9	45	22
International Falls	1967	..	....	....	....	..	....	....	....	..	....	....	....	...	....	....	....	...	....	....	....
	1968	2	8.3	9.4	8.8	2	12.1	26.1	19.1	2	0	0	0	7	0	0	0	7	78	90	86
MISSISSIPPI																					
Pascagoula	1967	..	....	....	....	..	....	....	....	..	....	....	....	...	....	....	....	...	....	....	....
	1968	1	8.0	8.0	....	1	30.9	30.9	....	1	1	1	....	6	0	6	1.0	5	79	88	....
Natchez	1967	..	....	....	....	..	....	....	....	..	....	....	....	...	....	....	....	...	....	....	....
	1968	2	2.2	6.6	4.4	2	30.9	30.9	30.9	2	0	0	0	8	0	0	0	6	36	83	60
Vicksburg	1967	..	....	....	....	..	....	....	....	..	....	....	....	...	....	....	....	...	....	....	....
	1968	..	....	....	....	1	6.4	6.4	....	3	0	0	0	8	0	0	0	8	45	86	66
Jackson	1967	..	....	....	....	..	....	....	....	..	....	....	....	...	....	....	....	...	....	....	....
	1968	1	4.4	4.4	....	1	16.7	16.7	....	1	0	0	....	3	0	0	....	...	....	....	....

Table B–1 (continued). DATA SUMMARY

State/city	Year	Lead peroxide candle				Lead plates				Dustfall				Sticky paper				Rubber cracking			
		Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean
MICHIGAN (continued)																					
Port Huron	1967	3	1.2	2.2	.....	...	.....	.....	.....	4	2.4	11.7	.....	4	25	36	.....	...	.....	.....	.....
	1968	12	0.8	2.2	1.2	10	6	14	9	12	1.6	11.7	7.6	12	5	64	34	46	0	.353	.058
St. Clair	1967	3	0.5	1.0	.....	...	.....	.....	.....	4	2.5	5.9	.....	4	7	38	.....	14	0	.403	.....
	1968	10	0.4	1.7	1.0	8	4	12	6	10	2.4	10.2	5.3	12	15	68	37	47	0	.413	.056
Dearborn	1967	...	.....	.....	.....	...	.....	.....	.....	...	.....	.....	.....	...	.....	.....	.....	...	.....	.....	.....
	1968	...	.....	.....	.....	...	.....	.....	.....	...	.....	.....	.....	...	.....	.....	.....	...	.....	.....	.....
Sault St. Marie	1967	1	0.5	0.5	.....	...	.....	.....	.....	1	1.6	1.6	.....	...	.....	.....	.....	5	0	.078	.....
	1968	12	0.0	0.8	0.4	11	1	6	3	12	0.6	9.4	4.9	12	11	62	37	50	0	.337	.067
Ann Arbor	1967	...	.....	.....	.....	...	.....	.....	.....	...	.....	.....	.....	...	.....	.....	.....	...	.....	.....	.....
	1968	8	0.0	0.6	0.2	8	0	5	2	9	3.2	9.3	5.0	8	3	38	16	37	0	.381	.076
MINNESOTA																					
Duluth	1967	11	0.0	0.5	0.3	...	.....	.....	.....	12	0.9	8.6	4.7	12	2	46	24	51	0	.428	.078
	1968	12	0.0	0.5	0.2	11	2	5	2	12	1.5	10.7	5.8	12	10	57	27	51	0	.277	.021
Winona	1967	...	.....	.....	.....	...	.....	.....	.....	...	.....	.....	.....	...	.....	.....	.....	...	.....	.....	.....
	1968	12	0.0	1.2	0.4	9	0	6	2	12	1.3	9.0	4.6	12	4	48	26	48	0	.358	.052
E. Grand Forks	1967	...	.....	.....	.....	...	.....	.....	.....	...	.....	.....	.....	...	.....	.....	.....	...	.....	.....	.....
	1968	7	0.0	0.1	0.0	7	0	1	0	7	1.7	12.3	8.3	6	31	77	53	29	0	.262	.060
Moorhead	1967	...	.....	.....	.....	...	.....	.....	.....	...	.....	.....	.....	...	.....	.....	.....	...	.....	.....	.....
	1968	7	0.0	0.6	0.2	7	0	3	1	7	1.6	4.4	2.5	4	27	58	.....	23	0	.237	.....
Ortonville	1967	...	.....	.....	.....	...	.....	.....	.....	...	.....	.....	.....	...	.....	.....	.....	...	.....	.....	.....
	1968	6	0.0	0.1	0.0	5	0	2	.....	6	2.1	6.2	4.8	5	6	56	.....	23	0	.394	.....
International Falls	1967	...	.....	.....	.....	...	.....	.....	.....	...	.....	.....	.....	...	.....	.....	.....	...	.....	.....	.....
	1968	7	1.3	2.2	1.5	6	4	17	11	7	13.1	44.3	29.0	7	27	80	58	28	0	.237	.041
MISSISSIPPI																					
Pascagoula	1967	...	.....	.....	.....	...	.....	.....	.....	...	.....	.....	.....	...	.....	.....	.....	...	.....	.....	.....
	1968	5	0.0	0.2	.....	5	1	2	1	5	1.4	3.8	.....	4	1	16	.....	18	0	.353	.....
Natchez	1967	...	.....	.....	.....	...	.....	.....	.....	...	.....	.....	.....	...	.....	.....	.....	...	.....	.....	.....
	1968	9	0.0	0.1	0.0	7	0	1	0	7	4.3	8.4	5.8	2	18	39	.....	18	0	.307	.....
Vicksburg	1967	...	.....	.....	.....	...	.....	.....	.....	...	.....	.....	.....	...	.....	.....	.....	...	.....	.....	.....
	1968	8	0.0	0.1	0.0	6	0	1	0	8	0.8	9.5	4.8	5	1	34	.....	22	0	.601	.....
Jackson	1967	...	.....	.....	.....	...	.....	.....	.....	...	.....	.....	.....	...	.....	.....	.....	...	.....	.....	.....
	1968	...	.....	.....	.....	1	0	0	.....	...	.....	.....	.....	...	.....	.....	.....	3	0	.093	.....

Table B–1 (continued). DATA SUMMARY

State/city	Year	Zinc				Annual steel				Quarterly steel				Fabric No. 1				Fabric No. 2			
		Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean
MISSOURI																					
St. Louis	1967	1	----	----	2.4	1	----	----	27	4	38	56	49	4	16.8	19.6	17.7	4	4.8	6.0	5.6
(28)	1968	1	----	----	6.0	1	----	----	33	4	43	77	54	4	20.6	24.2	21.7	--	----	----	----
St. Louis	1967	1	----	----	3.9	1	----	----	50	4	86	109	95	4	12.1	18.7	16.4	3	1.4	7.7	3.7
(45)	1968	1	----	----	4.9	1	----	----	54	4	78	123	102	3	17.6	21.5	19.4	--	----	----	----
Kansas City	1967	1	----	----	1.2	1	----	----	18	4	9	40	21	4	12.8	17.0	15.1	3	2.6	4.3	3.3
(48)	1968	1	----	----	3.7	1	----	----	17	4	2	41	16	4	17.6	21.9	19.7	--	----	----	----
Independence	1967	1	----	----	1.0	1	----	----	8	4	9	69	34	4	14.4	19.9	17.2	3	1.6	6.0	3.2
	1968	1	----	----	1.3	1	----	----	20	4	5	32	17	4	17.7	22.6	19.9	--	----	----	----
Kansas City	1967	1	----	----	0.8	1	----	----	17	4	2	18	12	4	13.8	15.9	15.0	3	1.3	5.1	2.8
(86)	1968	1	----	----	0.9	1	----	----	20	1	5	47	19	4	17.0	20.4	18.6	--	----	----	----
St. Joseph	1967	--	----	----	----	--	----	----	----	--	----	----	----	1	13.6	13.6	----	1	1.1	1.1	----
	1968	1	----	----	0.6	1	----	----	7	4	2	8	4	4	16.6	20.5	18.5	--	----	----	----
Joplin	1967	--	----	----	----	--	----	----	----	--	----	----	----	1	14.8	14.8	----	1	3.0	3.0	----
	1968	1	----	----	0.6	1	----	----	9	4	3	44	14	4	18.1	21.0	19.4	--	----	----	----
MONTANA																					
East Helena	1967	--	----	----	----	--	----	----	----	--	----	----	----	--	----	----	----	--	----	----	----
	1968	--	----	----	----	--	----	----	----	2	28	46	37	2	18.8	19.9	19.4	--	----	----	----
NEBRASKA																					
S. Sioux City	1967	--	----	----	----	--	----	----	----	--	----	----	----	1	15.1	15.1	----	1	1.6	1.6	----
	1968	--	----	----	----	1	----	----	5	4	1	10	5	4	16.8	18.7	17.7	--	----	----	----
Omaha	1967	--	----	----	----	--	----	----	----	--	----	----	----	1	16.0	16.0	----	1	1.2	1.2	----
	1968	1	----	----	0.5	1	----	----	8	4	3	9	6	4	17.4	19.8	19.0	--	----	----	----
NEVADA																					
Boulder City	1967	1	----	----	0.4	1	----	----	2	4	1	1	1	4	7.2	13.1	10.6	4	0.5	2.4	1.2
	1968	1	----	----	0.4	1	----	----	1	4	1	2	1	4	11.8	15.5	13.5	--	----	----	----
Incline Village	1967	1	----	----	0.4	1	----	----	1	4	1	1	1	4	9.9	12.8	11.4	4	1.0	1.4	1.2
	1968	1	----	----	3.8	1	----	----	1	3	1	2	1	4	14.0	15.0	14.6	--	----	----	----
NEW HAMPSHIRE																					
Lebanon	1967	--	----	----	----	--	----	----	----	--	----	----	----	1	17.1	17.1	----	1	2.9	2.9	----
	1968	1	----	----	3.0	--	----	----	----	4	43	55	47	4	14.7	18.2	16.3	--	----	----	----
Salem	1967	--	----	----	----	--	----	----	----	1	37	37	----	1	19.4	19.4	----	1	2.5	2.5	----
	1968	1	----	----	1.7	1	----	----	36	4	37	53	46	4	16.2	20.5	18.3	--	----	----	----

Table B–1 (continued). DATA SUMMARY

State/city	Year	Fabric No. 3				Fabric No. 4				Fabric No. 5				Fabric No. 6				Fabric No. 7			
		Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean
MISSOURI																					
St. Louis (28)	1967	4	19.0	30.6	24.3	3	8.7	19.7	14.4	--	----	----	----	--	----	----	----	--	----	----	----
	1968	4	27.9	37.7	33.5	--	----	----	----	4	4.6	9.0	6.8	4	8.9	10.9	9.6	4	4.0	15.9	10.8
St. Louis (45)	1967	4	23.1	28.7	25.8	4	13.0	23.9	17.6	--	----	----	----	--	----	----	----	--	----	----	----
	1968	3	27.1	28.8	27.8	--	----	----	----	3	7.2	11.9	8.9	2	11.5	12.9	12.2	3	11.0	14.1	13.0
Kansas City (48)	1967	4	17.0	23.7	19.3	3	8.9	22.7	16.6	--	----	----	----	--	----	----	----	--	----	----	----
	1968	4	19.9	25.7	24.0	--	----	----	----	4	6.8	12.3	9.5	3	6.0	8.7	7.2	4	7.1	11.4	9.2
Independence	1967	4	12.0	20.9	17.5	4	13.8	26.7	19.8	--	----	----	----	--	----	----	----	--	----	----	----
	1968	4	20.5	23.7	21.7	--	----	----	----	3	8.2	12.6	10.1	4	8.2	10.9	9.2	4	5.5	12.8	9.5
Kansas City (86)	1967	4	15.3	21.6	18.4	4	12.6	24.5	18.2	--	----	----	----	--	----	----	----	--	----	----	----
	1968	4	17.0	22.8	20.7	--	----	----	----	4	7.0	13.4	10.7	4	4.8	8.9	6.4	4	5.0	8.6	7.1
St. Joseph	1967	1	9.5	9.5	----	1	7.3	7.3	----	--	----	----	----	--	----	----	----	--	----	----	----
	1968	4	16.6	20.9	19.0	--	----	----	----	4	6.7	14.2	10.6	2	6.2	7.2	6.7	2	7.2	9.7	8.4
Joplin	1967	1	14.8	14.8	----	1	11.3	11.3	----	--	----	----	----	--	----	----	----	--	----	----	----
	1968	4	17.5	22.2	20.1	--	----	----	----	3	7.8	13.0	10.4	4	4.6	11.7	8.4	4	5.4	12.3	8.1
MONTANA																					
East Helena	1967	--	----	----	----	--	----	----	----	--	----	----	----	--	----	----	----	--	----	----	----
	1968	2	17.2	20.1	18.6	--	----	----	----	2	9.5	11.3	10.4	2	8.5	12.9	10.7	2	14.1	15.4	14.8
NEBRASKA																					
S. Sioux City	1967	1	9.3	9.3	----	--	----	----	----	--	----	----	----	--	----	----	----	--	----	----	----
	1968	3	18.5	22.0	19.7	--	----	----	----	3	7.5	10.3	8.8	3	5.0	7.5	6.4	2	6.6	11.1	8.8
Omaha	1967	1	28.6	28.6	----	1	7.7	7.7	----	--	----	----	----	--	----	----	----	--	----	----	----
	1968	4	17.3	21.4	19.6	--	----	----	----	4	5.6	14.5	9.9	4	6.1	13.7	10.5	4	6.5	17.6	11.0
NEVADA																					
Boulder	1967	4	8.4	13.8	12.1	3	15.9	22.2	18.7	--	----	----	----	--	----	----	----	--	----	----	----
	1968	4	14.3	16.2	15.2	--	----	----	----	4	13.3	17.6	15.2	4	2.7	9.7	5.6	3	1.9	10.7	6.0
Incline Village	1967	4	7.9	12.5	10.4	4	13.7	18.4	15.6	--	----	----	----	--	----	----	----	--	----	----	----
	1968	4	10.3	11.5	10.6	--	----	----	----	4	10.7	12.6	11.9	4	2.9	5.5	4.0	4	2.3	11.1	5.6
NEW HAMPSHIRE																					
Lebanon	1967	1	23.6	23.6	----	1	24.2	24.2	----	--	----	----	----	--	----	----	----	--	----	----	----
	1968	3	19.4	26.2	22.1	--	----	----	----	3	8.4	13.1	11.3	3	5.0	10.3	7.4	3	3.4	10.8	7.2
Salem	1967	1	18.8	18.8	----	1	24.3	24.3	----	--	----	----	----	--	----	----	----	--	----	----	----
	1968	4	22.8	31.6	26.3	--	----	----	----	4	8.6	14.4	11.7	4	5.4	10.4	7.4	4	4.5	9.5	7.2

Table B–1 (continued). DATA SUMMARY

State/city	Year	Fabric No. 8				Fabric No. 9				Quarterly nylon				Monthly nylon				Silver tarnishing			
		Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean
MISSOURI																					
St. Louis (28)	1967	..	....	....	....	..	....	....	....	4	0	4	1.2	12	0	2	0.5	12	48	84	66
	1968	4	5.1	6.9	6.0	3	17.5	27.4	21.1	4	0	5	1.5	12	0	4	0.6	12	23	83	64
St. Louis (45)	1967	..	....	....	....	..	....	....	....	4	7	37	23.5	12	1	20	7.2	12	81	95	89
	1968	3	7.1	8.8	8.0	3	19.3	36.1	24.9	4	13	97	39.0	12	0	50	11.6	12	77	96	87
Kansas City (48)	1967	..	....	....	....	..	....	....	....	4	0	3	1.2	11	0	7	0.7	12	28	83	48
	1968	4	3.0	8.8	5.4	4	11.5	21.6	17.2	4	0	4	1.5	12	0	1	0.1	12	29	76	47
Independence	1967	..	....	....	....	..	....	....	....	3	0	0	0	11	0	1	0.1	11	22	79	43
	1968	4	4.6	8.2	6.8	2	11.8	25.0	18.4	4	0	0	0	12	0	0	0	12	34	83	50
Kansas City (86)	1967	..	....	....	....	..	....	....	....	4	0	0	0	11	0	2	0.3	12	14	59	41
	1968	4	2.8	13.2	7.0	4	13.2	27.3	18.9	4	0	0	0	12	0	0	0	12	26	66	38
St. Joseph	1967	..	....	....	....	..	....	....	....	..	....	....	....	2	0	0	....	1	41	41	....
	1968	4	4.8	9.3	6.9	2	13.1	23.8	18.4	3	0	0	0	12	0	0	0	11	12	71	41
Joplin	1967	..	....	....	....	..	....	....	....	..	....	....	....	2	0	0	....	2	43	92	....
	1968	4	5.7	7.8	6.8	4	15.0	25.5	20.5	4	0	0	0	12	0	0	0	12	16	48	31
MONTANA																					
East Helena	1967	..	....	....	....	..	....	....	....	..	....	....	....	..	....	....	....	..	....	....	....
	1968	2	6.3	8.8	7.6	2	16.1	19.1	17.6	2	2	7	4.5	6	0	8	2.0	6	5	18	12
NEBRASKA																					
S. Sioux City	1967	..	....	....	....	..	....	....	....	4	0	0	....	2	0	0	....	2	18	22	....
	1968	3	4.4	13.1	7.5	2	13.3	26.1	19.7	4	0	15	3.8	11	0	2	0.2	12	11	22	17
Omaha	1967	..	....	....	....	..	....	....	....	4	0	0	....	2	0	0	....	2	12	16	....
	1968	4	4.7	11.9	7.6	4	10.3	21.2	16.6	4	0	0	0	12	0	0	0	11	8	45	27
NEVADA																					
Boulder	1967	..	....	....	....	..	....	....	....	4	0	0	0	11	0	0	0	10	8	89	28
	1968	4	2.9	11.5	6.1	4	4.9	21.1	10.5	3	0	0	0	12	0	0	0	12	8	89	32
Incline Village	1967	..	....	....	....	..	....	....	....	3	0	0	0	12	0	3	0.2	12	1	10	4
	1968	4	3.3	10.9	5.7	4	7.8	12.6	10.1	4	0	0	0	12	0	0	0	11	1	8	5
NEW HAMPSHIRE																					
Lebanon	1967	..	....	....	....	..	....	....	....	1	0	0	....	3	0	0	....	2	35	46	....
	1968	3	4.3	15.4	8.8	4	8.0	21.4	14.8	3	0	0	0	12	0	3	0.8	12	23	59	34
Salem	1967	..	....	....	....	..	....	....	....	1	0	0	....	3	0	0	....	2	30	31	....
	1968	4	5.1	14.8	10.0	4	13.9	30.5	22.2	4	0	4	1.2	11	0	0	0	12	25	64	38

Table B–1 (continued). DATA SUMMARY

State/city	Year	Lead peroxide candle				Lead plates				Dustfall				Sticky paper				Rubber cracking			
		Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean
MISSOURI																					
St. Louis	1967	12	0.4	2.2	1.6	...	.....	.....	.....	12	8.7	17.3	13.0	12	20	74	55	49	0	.237	.057
(28)	1968	12	1.1	2.4	1.5	11	8	15	10	12	9.2	21.1	15.7	12	36	84	65	51	0	.174	.050
St Louis	1967	12	1.7	5.7	3.8	...	.....	.....	.....	12	6.8	23.4	12.8	12	15	62	44	51	0	.234	.078
(45)	1968	12	1.0	4.7	2.9	11	6	33	21	11	3.0	12.8	7.5	12	13	74	48	51	0	.300	.043
Kansas City	1967	12	0.0	0.9	0.4	...	.....	.....	.....	12	3.7	15.1	6.4	12	11	68	35	52	0	.323	.082
(48)	1968	11	0.0	1.2	0.4	12	0	9	3	12	0.4	9.2	5.6	11	12	76	40	51	0	.378	.073
Independence	1967	11	0.0	0.7	0.3	...	.....	.....	.....	12	2.3	10.5	5.4	12	7	45	23	47	0	.431	.136
	1968	12	0.0	1.0	0.4	11	0	6	3	12	0.3	6.2	3.8	12	3	69	28	51	0	.365	.109
Kansas City	1967	12	0.0	0.4	0.2	...	.....	.....	.....	12	1.9	8.3	3.8	12	5	53	18	51	0	.418	.102
(86)	1968	11	0.0	2.1	0.3	11	0	13	3	12	0.4	6.9	4.0	12	3	66	32	51	0	.550	.107
St. Joseph	1967	2	0.0	0.2	.....	...	.....	.....	.....	2	1.1	5.4	.....	2	4	10	.....	7	0	0	.....
	1968	12	0.0	0.5	0.1	12	0	3	1	12	2.9	12.1	6.6	12	5	65	34	52	0	.573	.096
Joplin	1967	2	0.2	0.2	.....	...	.....	.....	.....	2	0.6	1.6	.....	2	17	21	.....	9	0	0	.....
	1968	12	0.0	0.9	0.1	11	0	2	1	11	1.4	3.2	2.2	12	5	62	28	52	0	.398	.116
MONTANA																					
East Helena	1967	...	.....	.....	.....	...	.....	.....	.....	...	.....	.....	.....	...	.....	.....	.....	...	.....	.....	.....
	1968	6	3.0	4.6	4.0	5	13	34	.....	6	3.1	10.1	6.9	6	14	69	39	24	0	.235	.....
NEBRASKA																					
S. Sioux City	1967	2	0.2	0.2	.....	...	.....	.....	.....	2	4.9	6.3	.....	3	20	43	.....	10	0	0	.....
	1968	12	0.0	0.1	0.0	10	0	2	0	11	3.3	13.1	9.0	11	16	79	42	48	0	.282	.057
Omaha	1967	2	0.3	0.4	.....	...	.....	.....	.....	2	0.6	2.5	.....	3	12	15	.....	7	0	0	.....
NEVADA																					
Boulder	1967	12	0.0	0.1	0.0	...	.....	.....	.....	10	0.4	5.5	1.5	12	10	58	33	51	0	.630	.249
	1968	12	0.0	0.1	0.0	11	0	2	0	12	0.5	1.2	0.8	11	15	52	31	50	0	.549	.210
Incline Village	1967	12	0.0	0.1	0.0	...	.....	.....	.....	12	0.3	2.5	1.2	12	2	28	7	45	0	.653	.100
	1968	12	0.0	0.1	0.0	12	0	2	0	12	0.4	3.3	1.3	8	1	22	12	38	0	.363	.105
NEW HAMPSHIRE																					
Lebanon	1967	3	0.5	0.7	.....	...	.....	.....	.....	3	2.0	3.0	.....	3	7	19	.....	12	0	0	.....
	1968	12	0.0	1.0	0.4	12	0	6	3	12	1.2	5.0	3.1	9	3	58	22	39	0	.318	.051
Salem	1967	2	0.3	0.4	.....	...	.....	.....	.....	3	2.0	3.6	.....	3	14	19	.....	12	0	0	.....
	1968	12	0.0	0.5	0.2	11	0	3	2	10	1.1	5.1	2.7	3	7	41	.....	16	0	.406	.....

Table B–1 (continued). DATA SUMMARY

State/city	Year	Zinc				Annual steel				Quarterly steel				Fabric No. 1				Fabric No. 2			
		Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean
NEW HAMPSHIRE (continued)																					
Portsmouth	1967	..	....	....	.....	..	....	....	.....	..	....	....	.....	1	20.5	20.5	.....	1	8.5	8.5	.....
	1968	1	....	....	4.1	1	....	....	50	4	74	146	102	4	19.3	21.1	20.2	..	....	....	.....
Cannon Mountain	1967	..	....	....	.....	..	....	....	.....	1	12	13	.....	1	23.3	23.3	.....	1	1.6	1.6	.....
	1968	..	....	....	.....	..	....	....	.....	..	....	....	.....	3	14.9	21.8	18.2	..	....	....	.....
NEW JERSEY																					
May's Landing	1967	1	....	....	1.4	1	....	....	55	4	58	70	66	4	13.3	19.5	16.6	4	1.0	1.6	1.3
	1968	1	....	....	1.4	..	....	....	.....	2	53	114	84	1	16.0	16.0	.....	..	....	....	.....
Perth Amboy	1967	1	....	....	7.1	1	....	....	61	4	86	118	100	3	14.1	16.5	15.3	3	2.9	8.7	5.1
	1968	1	....	....	4.9	1	....	....	58	3	84	121	104	4	15.9	21.6	19.1	..	....	....	.....
Elizabeth	1967	1	....	....	3.3	1	....	....	57	4	68	89	74	4	11.9	16.3	14.6	3	2.6	4.8	3.4
	1968	1	....	....	15.1	1	....	....	44	3	57	130	96	4	15.1	19.2	17.7	..	....	....	.....
Penns Grove	1967	1	....	....	2.7	1	....	....	55	4	77	99	86	4	14.0	17.4	16.2	4	1.1	5.4	2.5
	1968	1	....	....	2.0	1	....	....	56	4	82	96	86	3	16.2	18.3	16.9	..	....	....	.....
Camden	1967	1	....	....	4.2	1	....	....	44	3	68	74	70	4	15.5	19.7	17.3	4	2.9	4.9	3.7
	1968	1	....	....	3.1	1	....	....	40	3	33	67	46	3	17.0	20.3	18.3	..	....	....	.....
Trenton	1967	..	....	....	.....	..	....	....	.....	1	79	79	.....	2	13.2	17.1	15.2	2	4.3	7.5	5.9
	1968	1	....	....	3.9	..	....	....	.....	1	18	18	.....	2	16.4	19.6	18.0	..	....	....	.....
Metuchen	1967	..	....	....	.....	..	....	....	.....	..	....	....	.....	..	....	....	.....	..	....	....	.....
	1968	1	....	....	4.9	1	....	....	52	3	89	115	98	3	18.0	23.4	20.9	..	....	....	.....
NEW MEXICO																					
Shiprock	1967	1	....	....	0.3	1	....	....	5	4	1	9	4	4	11.0	17.6	14.4	4	1.2	3.4	2.7
	1968	1	....	....	0.4	1	....	....	7	4	1	4	3	3	16.7	17.3	17.0	..	....	....	.....
Farmington	1967	1	....	....	0.3	1	....	....	4	4	2	3	2	4	10.9	13.5	11.8	4	2.0	4.2	2.9
	1968	1	....	....	8.1	1	....	....	6	3	1	2	1	4	14.6	16.4	15.6	..	....	....	.....
Dulce	1967	1	....	....	0.3	1	....	....	2	4	0	2	1	4	8.8	13.5	11.3	4	0.9	1.5	1.1
	1968	..	....	....	.....	..	....	....	.....	3	1	5	3	3	13.4	15.4	14.1	..	....	....	.....
Sunland Park	1967	1	....	....	0.2	..	....	....	.....	4	0	9	4	3	6.2	14.8	10.6	3	1.6	4.1	2.9
	1968	1	....	....	9.9	1	....	....	18	3	13	53	28	4	14.3	20.0	17.8	..	....	....	.....
Anthony	1967	1	....	....	0.3	1	....	....	4	4	0	4	2	4	7.4	13.9	10.2	4	0.9	2.4	1.4
	1968	1	....	....	0.3	1	....	....	8	4	1	14	5	4	13.3	18.3	16.5	..	....	....	.....
NEW YORK																					
Staten Island	1967	1	....	....	4.2	1	....	....	63	4	99	152	114	3	17.6	18.8	18.1	3	1.4	2.1	1.8
	1968	1	....	....	3.6	1	....	....	63	4	83	120	104	4	17.1	23.9	20.2	..	....	....	.....

Table B–1 (continued). DATA SUMMARY

State/city	Year	Fabric No. 3				Fabric No. 4				Fabric No. 5				Fabric No. 6				Fabric No. 7			
		Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean
NEW HAMPSHIRE (continued)																					
Portsmouth	1967	1	32.2	32.2	.....	1	22.9	22.9	.....	..	.....	.....	.....	..	.....	.....	.....	..	.....	.....	.....
	1968	4	29.4	40.2	34.0	..	.....	.....	.....	4	8.2	14.0	11.0	4	7.5	16.7	10.8	4	5.6	20.8	11.7
Cannon Mountain	1967	1	19.5	19.5	.....	1	28.9	28.9	.....	..	.....	.....	.....	..	.....	.....	.....	..	.....	.....	.....
	1968	2	16.6	21.3	19.0	..	.....	.....	.....	3	7.9	16.4	13.4	3	5.2	12.7	8.6	3	3.3	8.9	5.8
NEW JERSEY																					
May's Landing	1967	4	18.3	29.9	21.8	4	20.1	37.4	27.5	..	.....	.....	.....	..	.....	.....	.....	..	.....	.....	.....
	1968	..	.....	.....	.....	..	.....	.....	.....	1	12.4	12.4	.....	..	.....	.....	.....	1	15.4	15.4	.....
Perth Amboy	1967	3	21.8	36.8	30.1	4	8.5	28.6	17.2	..	.....	.....	.....	..	.....	.....	.....	..	.....	.....	.....
	1968	4	35.8	42.8	40.2	..	.....	.....	.....	4	5.6	13.9	9.5	4	9.7	13.1	11.4	3	5.1	11.9	7.6
Elizabeth	1967	3	33.7	45.4	37.9	4	11.7	24.3	16.6	..	.....	.....	.....	..	.....	.....	.....	..	.....	.....	.....
	1968	4	44.1	51.6	48.9	..	.....	.....	.....	4	4.5	14.8	9.1	4	8.4	13.0	10.0	4	3.5	15.3	7.4
Penns Grove	1967	4	28.2	42.3	35.2	4	15.3	30.9	21.7	..	.....	.....	.....	..	.....	.....	.....	..	.....	.....	.....
	1968	3	36.8	49.5	44.4	..	.....	.....	.....	3	7.7	18.7	11.8	2	7.7	12.9	10.3	3	9.3	20.0	13.8
Camden	1967	4	26.5	37.3	33.1	3	9.1	24.1	17.1	..	.....	.....	.....	..	.....	.....	.....	..	.....	.....	.....
	1968	3	40.4	47.2	44.6	..	.....	.....	.....	3	4.9	10.9	7.0	3	8.3	14.6	12.5	3	6.5	13.4	11.1
Trenton	1967	2	25.1	39.8	32.4	2	13.6	13.7	13.6	..	.....	.....	.....	..	.....	.....	.....	..	.....	.....	.....
	1968	2	32.8	36.8	34.8	..	.....	.....	.....	2	6.2	15.6	10.9	2	5.1	11.3	8.2	2	3.7	11.2	7.4
Metuchen	1967	..	.....	.....	.....	..	.....	.....	.....	..	.....	.....	.....	..	.....	.....	.....	..	.....	.....	.....
	1968	3	33.3	43.1	39.5	..	.....	.....	.....	3	7.5	16.8	10.6	3	8.2	12.8	10.2	3	8.6	13.7	10.7
NEW MEXICO																					
Shiprock	1967	4	7.5	20.2	14.7	4	12.5	20.0	15.4	..	.....	.....	.....	..	.....	.....	.....	..	.....	.....	.....
	1968	4	12.7	15.8	14.2	..	.....	.....	.....	3	10.8	12.9	12.0	3	6.3	10.1	7.8	3	2.4	7.1	5.1
Farmington	1967	4	12.8	16.6	14.4	3	12.8	17.5	14.8	..	.....	.....	.....	..	.....	.....	.....	..	.....	.....	.....
	1968	4	14.2	18.3	15.8	..	.....	.....	.....	4	8.7	13.0	10.4	4	5.4	6.6	6.2	4	3.6	7.7	6.0
Dulce	1967	4	6.2	11.7	9.9	4	11.7	22.0	15.0	..	.....	.....	.....	..	.....	.....	.....	..	.....	.....	.....
	1968	3	9.9	12.8	11.0	..	.....	.....	.....	2	10.2	10.2	10.2	3	2.7	4.7	3.9	3	3.0	5.7	4.0
Sunland Park	1967	4	10.2	14.7	12.9	2	9.9	11.0	10.4	..	.....	.....	.....	..	.....	.....	.....	..	.....	.....	.....
	1968	4	14.7	16.1	15.5	..	.....	.....	.....	4	9.5	13.7	11.7	4	5.5	8.5	6.8	4	3.9	10.9	6.7
Anthony	1967	4	6.5	12.4	10.6	3	10.2	20.7	15.1	..	.....	.....	.....	..	.....	.....	.....	..	.....	.....	.....
	1968	4	12.8	15.0	14.2	..	.....	.....	.....	4	8.4	12.5	10.6	4	3.5	9.4	6.0	4	1.9	8.2	5.0
NEW YORK																					
Staten Island	1967	4	32.2	45.2	37.4	4	16.5	27.1	21.1	..	.....	.....	.....	..	.....	.....	.....	..	.....	.....	.....
	1968	4	34.9	44.4	41.5	..	.....	.....	.....	4	3.8	16.7	11.5	4	10.0	13.5	11.8	4	3.0	12.0	7.6

Table B–1 (continued). DATA SUMMARY

State/city	Year	Fabric No. 8				Fabric No. 9				Quarterly nylon				Monthly nylon				Silver tarnishing			
		Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean
NEW HAMPSHIRE (continued)																					
Portsmouth	1967	..	.....	.....	.....	..	.....	.....	.....	1	4	4	.....	3	0	1	.....	2	65	79	.....
	1968	4	10.7	15.1	13.4	4	17.1	29.6	23.8	3	2	5	3.7	11	0	9	2.6	12	25	85	62
Cannon Mountain	1967	..	.....	.....	.....	..	.....	.....	.....	1	0	0	.....	3	0	0	.....	2	27	27	.....
	1968	2	10.4	14.6	12.5	3	8.5	17.1	14.0	3	0	0	0	11	0	0	0	11	11	41	27
NEW JERSEY																					
May's Landing	1967	..	.....	.....	.....	..	.....	.....	.....	3	0	0	0	9	0	0	0	12	38	76	56
	1968	1	5.1	5.1	.....	..	.....	.....	.....	1	0	0	.....	3	0	0	.....	2	47	55	.....
Perth Amboy	1967	..	.....	.....	.....	..	.....	.....	.....	3	10	80	33.3	11	0	31	6.9	12	35	70	52
	1968	4	6.4	10.9	8.6	3	18.3	31.4	23.4	2	8	14	11.0	10	0	21	5.2	12	44	74	60
Elizabeth	1967	..	.....	.....	.....	..	.....	.....	.....	4	10	17	12.5	12	0	5	1.9	12	28	89	68
	1968	4	6.7	10.2	8.8	4	15.2	28.3	21.7	4	4	82	30.2	12	0	76	12.0	12	21	82	64
Penns Grove	1967	..	.....	.....	.....	..	.....	.....	.....	3	3	10	6.0	12	0	5	2.2	12	65	88	74
	1968	3	7.1	14.2	11.0	2	13.9	20.9	17.4	4	0	6	3.5	12	0	4	0.8	12	41	91	69
Camden	1967	..	.....	.....	.....	..	.....	.....	.....	3	3	18	9.0	11	0	3	0.8	12	59	92	77
	1968	2	4.1	8.7	6.4	3	10.1	23.4	17.5	3	0	4	1.7	12	0	4	1.1	10	32	86	74
Trenton	1967	..	.....	.....	.....	..	.....	.....	.....	2	0	20	10.0	10	0	24	5.7	9	40	86	68
	1968	3	4.9	9.7	7.3	2	17.8	37.7	27.8	4	1	4	2.5	10	0	1	0.1	7	35	78	63
Metuchen	1967	..	.....	.....	.....	..	.....	.....	.....	..	.....	.....	.....	...	.....	.....	.....	...	.....	.....	.....
	1968	4	8.0	19.8	12.0	4	13.0	34.8	23.2	4	0	3	1.2	11	0	1	0.4	11	42	82	64
NEW MEXICO																					
Shiprock	1967	..	.....	.....	.....	..	.....	.....	.....	4	0	0	0	11	0	0	0	12	15	77	34
	1968	3	4.9	12.5	7.9	3	9.2	15.6	12.3	4	0	0	0	11	0	1	0.1	10	13	70	32
Farmington	1967	..	.....	.....	.....	..	.....	.....	.....	4	0	0	0	11	0	0	0	12	29	64	43
	1968	4	3.5	9.9	7.2	4	9.6	17.1	11.8	2	0	0	0	10	0	0	0	8	21	55	35
Dulce	1967	..	.....	.....	.....	..	.....	.....	.....	4	0	0	0	9	0	0	0	9	4	16	8
	1968	3	3.4	8.8	5.3	3	5.1	14.8	9.5	3	0	0	0	11	0	0	0	8	1	13	5
Sunland Park	1967	..	.....	.....	.....	..	.....	.....	.....	4	0	2	0.8	10	0	1	0.2	9	33	92	61
	1968	4	4.0	17.0	8.4	4	6.8	17.2	12.8	4	0	1	0.5	12	0	3	0.9	11	30	86	59
Anthony	1967	..	.....	.....	.....	..	.....	.....	.....	3	0	0	0	11	0	0	0	12	10	66	33
	1968	4	2.6	8.1	5.2	4	4.5	17.0	9.8	4	0	0	0	12	0	0	0	12	11	65	33
NEW YORK																					
Staten Island	1967	..	.....	.....	.....	..	.....	.....	.....	2	5	10	7.5	10	0	5	1.9	10	56	82	67
	1968	4	7.4	12.6	10.0	4	16.9	36.3	25.2	4	0	6	1.8	12	0	3	0.8	12	55	85	72

Table B–1 (continued). DATA SUMMARY

State/city	Year	Lead peroxide candle				Lead plates				Dustfall				Sticky paper				Rubber cracking			
		Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean
NEW HAMPSHIRE (continued)																					
Portsmouth	1967	3	3.4	6.2	.....	...	....	....	.....	3	1.6	4.3	.....	3	21	45	.....	9	0	0	.....
	1968	9	0.4	6.5	2.4	9	3	35	15	12	1.1	10.8	3.6	6	11	60	33	26	0	.337	.080
Cannon Mountain	1967	3	0.2	0.3	.....	...	....	....	.....	2	0.1	0.6	.....	3	2	6	.....	11	0	0	.....
	1968	11	0.0	0.3	0.1	10	0	2	1	12	0.2	3.3	1.3	5	1	19	.....	32	0	.388	.059
NEW JERSEY																					
May's Landing	1967	10	0.1	0.8	0.4	...	....	....	.....	10	0.7	3.6	1.9	10	0	20	6	35	0	.436	.155
	1968	3	0.0	0.5	.....	2	2	2	.....	3	2.9	3.3	.....	2	10	20	.....	11	0	.318	.....
Perth Amboy	1967	12	1.6	3.6	2.5	...	....	....	.....	12	4.0	12.7	7.0	12	14	63	37	51	0	.282	.076
	1968	12	0.4	4.2	1.8	10	7	26	16	11	2.1	8.6	5.7	10	9	66	40	51	0	.399	.084
Elizabeth	1967	12	0.9	3.0	1.9	...	....	....	.....	12	3.8	11.2	8.0	12	5	58	24	51	0	.307	.076
	1968	12	0.0	4.0	1.5	12	3	23	11	12	3.3	14.7	6.3	12	2	67	33	52	0	.209	.063
Penns Grove	1967	12	0.7	2.3	1.2	...	....	....	.....	12	3.2	7.8	5.1	12	6	40	21	49	0	.391	.095
	1968	12	0.8	2.1	1.2	4	6	7	.....	12	2.3	6.1	4.0	11	11	45	27	47	0	.275	.070
Camden	1967	12	0.9	4.2	2.6	...	....	....	.....	12	6.5	17.4	10.1	12	38	74	55	44	0	.368	.106
	1968	11	0.9	3.2	2.1	10	14	32	21	12	4.5	13.8	9.1	9	32	79	37	42	0	.323	.088
Trenton	1967	8	1.0	2.4	1.6	...	....	....	.....	5	3.0	7.5	.....	7	16	43	32	26	0	.474	.051
	1968	12	0.6	2.1	1.1	10	4	14	7	10	2.1	7.2	5.0	7	6	47	30	29	0	.171	.050
Metuchen	1967	...	....	....	.....	...	....	....	.....	...	....	....	.....	...	....	....	.....	...	....	....	.....
	1968	10	0.2	2.0	1.3	6	6	17	10	9	1.5	5.8	3.1	10	6	57	32	43	0	.318	.115
NEW MEXICO																					
Shiprock	1967	12	0.0	0.1	0.0	...	....	....	.....	11	0.8	5.9	3.2	12	15	90	58	42	0	.488	.186
	1968	12	0.0	0.2	0.0	12	0	1	0	9	1.1	3.8	2.2	8	16	70	46	36	0	.496	.146
Farmington	1967	12	0.0	0.1	0.0	...	....	....	.....	11	1.2	7.8	2.8	11	15	85	43	40	0	.539	.139
	1968	10	0.0	0.1	0.0	10	0	1	0	11	1.3	4.2	2.3	8	7	62	30	42	0	.494	.144
Dulce	1967	11	0.0	0.2	0.0	...	....	....	.....	11	0.9	3.7	1.8	12	1	58	20	48	0	.524	.156
	1968	11	0.0	0.1	0.0	9	0	1	0	11	0.6	4.1	2.0	6	2	46	23	30	0	.515	.133
Sunland Park	1967	9	0.0	6.5	1.4	...	....	....	.....	9	0.7	5.6	2.7	9	32	70	53	37	0	.481	.175
	1968	11	0.0	4.0	1.9	9	1	30	15	12	0.7	4.1	2.6	10	22	71	49	45	0	.360	.160
Anthony	1967	12	0.0	0.2	0.1	...	....	....	.....	12	1.4	7.8	4.1	12	18	75	46	50	0	.426	.158
	1968	12	0.0	0.3	0.1	12	0	2	1	12	1.7	7.9	3.7	10	11	55	33	49	0	.398	.103
NEW YORK																					
Staten Island	1967	11	1.1	3.0	2.0	...	....	....	.....	10	0.8	9.9	3.7	11	4	4	24	44	0	.417	.102
	1968	12	0.7	5.1	1.9	11	7	32	16	12	2.1	6.6	4.1	12	11	57	35	52	0	.441	.099

Table B–1 (continued). DATA SUMMARY

State/city	Year	Zinc				Annual steel				Quarterly steel				Fabric No. 1				Fabric No. 2			
		Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean
NEW YORK (continued)																					
Brooklyn	1967	1	....	....	4.8	1	....	....	43	4	60	74	68	4	11.6	15.3	14.1	4	2.7	8.8	4.6
	1968	1	....	....	4.0	1	....	....	39	4	46	86	70	4	15.0	20.6	17.2	..	....	....	....
Mineola	1967	..	....	....	....	1	....	....	64	4	86	111	94	4	11.5	18.6	15.6	4	3.0	5.1	4.1
	1968	1	....	....	3.0	1	....	....	61	4	102	115	107	4	13.8	22.0	18.3	..	....	....	....
White Plains	1967	..	....	....	....	1	....	....	53	3	71	136	102	4	14.5	18.6	16.4	4	2.6	4.4	3.1
	1968	..	....	....	....	..	....	....	....	3	69	108	89	2	16.2	20.9	18.6	..	....	....	....
Albany	1967	1	....	....	2.9	1	....	....	52	4	60	84	72	4	14.4	18.7	16.0	4	1.6	6.4	3.7
	1968	1	....	....	1.0	1	....	....	26	2	55	83	69	1	17.8	17.8	....	..	....	....	....
Niagara Falls	1967	1	....	....	2.3	1	....	....	46	4	58	69	62	3	19.1	23.0	21.5	4	2.4	9.9	6.2
	1968	1	....	....	3.0	1	....	....	40	3	54	71	65	4	20.6	26.4	23.2	..	....	....	....
Buffalo	1967	1	....	....	6.0	1	....	....	72	4	94	106	98	4	18.0	21.4	20.3	4	5.2	10.2	7.0
	1968	1	....	....	7.1	1	....	....	88	3	104	164	128	3	20.0	25.9	22.9	..	....	....	....
Binghamton	1967	1	....	....	1.6	1	....	....	36	4	33	46	40	4	12.6	15.3	14.1	4	2.0	4.8	3.0
	1968	1	....	....	1.6	1	....	....	40	3	43	77	59	2	16.3	19.7	18.0	..	....	....	....
Petersburg	1967	1	....	....	1.0	1	....	....	37	4	16	39	28	4	12.6	16.8	14.8	4	0.9	1.2	1.1
	1968	1	....	....	0.9	1	....	....	27	4	18	29	24	4	14.4	19.5	16.8	..	....	....	....
Albany	1967	1	....	....	3.4	1	....	....	41	4	44	76	56	4	11.7	16.0	13.8	4	1.8	7.4	4.0
	1968	1	....	....	3.0	1	....	....	44	3	32	83	58	3	13.7	16.1	15.0	..	....	....	....
Long Island	1967	..	....	....	....	..	....	....	....	2	102	185	144	2	21.1	21.5	21.3	2	3.3	8.4	5.8
	1968	..	....	....	....	..	....	....	....	3	83	155	115	3	19.6	24.2	21.8	..	....	....	....
Ticonderoga	1967	..	....	....	....	..	....	....	....	1	42	42	....	1	16.2	16.2	....	1	1.0	1.0	....
	1968	1	....	....	3.0	1	....	....	42	3	51	63	55	3	12.8	18.8	15.9	..	....	....	....
Rooseveltown	1967	..	....	....	....	..	....	....	....	1	55	55	....	1	16.9	16.9	....	1	2.0	2.0	....
	1968	1	....	....	2.1	1	....	....	36	2	5	62	34	2	19.5	20.6	20.0	..	....	....	....
Cheektowaga	1967	..	....	....	....	..	....	....	....	..	....	....	....	..	....	....	....	..	....	....	....
	1968	..	....	....	....	..	....	....	....	..	....	....	....	..	....	....	....	..	....	....	....
Buffalo	1967	..	....	....	....	..	....	....	....	..	....	....	....	..	....	....	....	..	....	....	....
	1968	..	....	....	....	..	....	....	....	1	50	50	....	..	....	....	....	..	....	....	....
Niagara Falls (266)	1967	..	....	....	....	..	....	....	....	..	....	....	....	..	....	....	....	..	....	....	....
	1968	..	....	....	....	..	....	....	....	1	179	179	....	..	....	....	....	..	....	....	....
Niagara Falls (267)	1967	..	....	....	....	..	....	....	....	..	....	....	....	..	....	....	....	..	....	....	....
	1968	..	....	....	....	..	....	....	....	..	....	....	....	..	....	....	....	..	....	....	....

Table B–1 (continued). DATA SUMMARY

State/city	Year	Fabric No. 3				Fabric No. 4				Fabric No. 5				Fabric No. 6				Fabric No. 7			
		Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean
NEW YORK (continued)																					
Brooklyn	1967	4	49.2	53.2	50.7	4	10.2	20.3	14.9	--	----	----	----	--	----	----	----	--	----	----	----
	1968	4	48.2	60.9	54.5	--	----	----	----	4	3.9	9.1	6.4	4	7.2	11.6	9.9	4	4.0	14.7	8.8
Mineola	1967	4	30.4	46.9	39.6	4	14.5	33.9	22.9	--	----	----	----	--	----	----	----	--	----	----	----
	1968	4	45.6	54.7	49.5	--	----	----	----	4	7.3	15.6	11.1	4	9.9	11.8	11.0	4	3.7	14.3	8.7
White Plains	1967	4	29.1	41.5	33.6	4	12.9	31.7	22.0	--	----	----	----	--	----	----	----	--	----	----	----
	1968	2	37.9	46.2	42.0	--	----	----	----	2	7.5	14.7	11.1	2	7.1	10.9	9.0	3	8.0	16.2	11.0
Albany	1967	4	17.7	31.0	23.4	4	11.8	26.6	17.3	--	----	----	----	--	----	----	----	--	----	----	----
	1968	1	27.7	27.7	----	--	----	----	----	2	5.1	6.2	5.6	1	8.7	8.7	----	2	9.8	14.8	12.3
Niagara Falls	1967	3	17.7	23.3	20.2	3	12.9	24.7	19.5	--	----	----	----	--	----	----	----	--	----	----	----
	1968	4	23.6	27.5	25.0	--	----	----	----	4	7.1	14.1	10.3	4	6.2	13.2	10.3	4	6.4	12.3	9.4
Buffalo	1967	4	27.9	41.7	35.6	4	9.4	20.5	14.2	--	----	----	----	--	----	----	----	--	----	----	----
	1968	4	36.1	43.9	39.2	--	----	----	----	4	4.1	7.9	5.8	4	10.4	18.3	15.6	4	6.6	20.5	13.0
Binghamton	1967	4	23.3	43.8	30.7	4	11.4	36.5	22.0	--	----	----	----	--	----	----	----	--	----	----	----
	1968	2	27.9	29.4	28.6	--	----	----	----	2	8.2	13.3	10.8	2	7.7	8.7	8.2	2	6.8	12.6	9.7
Petersburg	1967	4	15.3	19.3	17.0	4	15.6	30.0	22.8	--	----	----	----	--	----	----	----	--	----	----	----
	1968	4	15.1	20.2	17.9	--	----	----	----	4	9.9	15.3	13.1	4	3.8	5.3	4.6	4	2.4	10.3	6.9
Albany	1967	4	23.9	40.6	28.9	4	7.7	20.7	13.8	--	----	----	----	--	----	----	----	--	----	----	----
	1968	3	26.7	41.2	35.1	--	----	----	----	1	5.4	5.4	----	3	6.8	10.1	8.4	3	5.0	9.7	7.3
Long Island	1967	2	18.1	24.5	21.3	1	35.1	35.1	----	--	----	----	----	--	----	----	----	--	----	----	----
	1968	3	31.1	40.7	35.4	--	----	----	----	2	12.3	19.4	15.8	3	5.9	9.7	7.8	2	8.3	14.1	11.2
Ticonderoga	1967	1	18.7	18.7	----	1	18.7	18.7	----	--	----	----	----	--	----	----	----	--	----	----	----
	1968	3	18.0	18.6	18.4	--	----	----	----	3	9.0	14.3	12.4	3	4.5	7.0	5.6	3	2.5	7.9	4.4
Rooseveltown	1967	--	----	----	----	--	----	----	----	--	----	----	----	--	----	----	----	--	----	----	----
	1968	3	20.1	34.1	25.3	--	----	----	----	3	9.9	15.0	13.2	3	7.7	10.5	9.5	2	2.4	12.7	7.6
Cheektowaga	1967	--	----	----	----	--	----	----	----	--	----	----	----	--	----	----	----	--	----	----	----
	1968	--	----	----	----	--	----	----	----	--	----	----	----	--	----	----	----	--	----	----	----
Buffalo	1967	--	----	----	----	--	----	----	----	--	----	----	----	--	----	----	----	--	----	----	----
	1968	--	----	----	----	--	----	----	----	--	----	----	----	--	----	----	----	--	----	----	----
Niagara Falls (266)	1967	--	----	----	----	--	----	----	----	--	----	----	----	--	----	----	----	--	----	----	----
	1968	--	----	----	----	--	----	----	----	--	----	----	----	--	----	----	----	--	----	----	----
Niagara Falls (267)	1967	--	----	----	----	--	----	----	----	--	----	----	----	--	----	----	----	--	----	----	----
	1968	--	----	----	----	--	----	----	----	--	----	----	----	--	----	----	----	--	----	----	----

Table B–1 (continued). DATA SUMMARY

State/city	Year	Fabric No. 8				Fabric No. 9				Quarterly nylon				Monthly nylon				Silver tarnishing			
		Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean
NEW YORK (continued)																					
Brooklyn	1967	..	....	....	.....	..	....	....	.....	4	0	14	7.0	12	0	6	3.0	12	46	93	78
	1968	4	5.1	16.4	9.5	4	16.4	31.7	24.0	4	1	22	8.0	12	0	7	3.6	12	64	88	80
Mineola	1967	..	....	....	.....	..	....	....	.....	3	0	1	0.7	11	0	1	0.2	12	43	71	55
	1968	4	6.5	17.3	11.6	4	16.3	34.2	26.0	3	0	4	1.7	11	0	8	1.4	12	29	73	57
White Plains	1967	..	....	....	.....	..	....	....	.....	3	0	0	0	12	0	0	0	12	38	87	54
	1968	2	6.7	15.5	11.1	2	14.7	32.5	23.6	4	0	12	5.0	12	0	1	0.2	11	27	71	56
Albany	1967	..	....	....	.....	..	....	....	.....	4	0	1	0.2	12	0	2	0.2	12	40	81	56
	1968	1	5.8	5.8	.....	1	16.1	16.1	.....	2	1	2	1.5	6	0	0	0	6	40	62	50
Niagara Falls	1967	..	....	....	.....	..	....	....	.....	4	0	0	0	10	0	0	0	11	59	98	80
	1968	4	7.4	12.4	8.9	4	12.6	23.5	18.8	4	0	1	0.2	12	0	0	0	12	60	93	78
Buffalo	1967	..	....	....	.....	..	....	....	.....	3	0	2	1.0	12	0	4	0.3	12	85	96	91
	1968	4	8.5	12.2	10.2	4	19.3	33.6	25.7	4	0	2	0.8	11	0	2	0.2	11	80	96	88
Binghamton	1967	..	....	....	.....	..	....	....	.....	4	0	0	0	12	0	0	0	12	24	50	38
	1968	2	4.5	8.7	6.6	3	9.9	43.0	24.9	3	0	0	0	11	0	0	0	11	24	63	42
Petersburg	1967	..	....	....	.....	..	....	....	.....	3	0	0	0	11	0	1	0.1	12	7	47	20
	1968	4	8.7	21.2	13.6	4	7.9	27.5	15.4	4	0	16	4.0	12	0	0	0	12	9	45	25
Albany	1967	..	....	....	.....	..	....	....	.....	4	1	41	18.2	12	0	17	5.8	12	25	81	52
	1968	3	4.3	16.7	9.6	2	14.6	19.7	17.2	3	0	19	11.3	12	0	10	2.0	12	32	78	57
Long Island	1967	..	....	....	.....	..	....	....	.....	1	0	0	.....	5	0	2	.....	5	53	72	.....
	1968	2	13.3	18.3	15.8	2	16.3	25.5	20.9	3	0	0	0	11	0	2	0.2	11	37	77	54
Ticonderoga	1967	..	....	....	.....	..	....	....	.....	1	0	0	.....	5	0	2	.....	3	66	86	.....
	1968	3	4.2	10.7	7.4	3	9.2	25.2	18.4	4	0	4	1.5	12	0	4	0.8	12	57	93	82
Rooseveltown	1967	..	....	....	.....	..	....	....	.....	..	....	....	.....	3	0	1	.....	3	56	78	.....
	1968	3	8.1	11.7	10.3	3	18.1	29.0	21.8	4	0	1	0.2	12	0	5	0.6	12	41	95	72
Cheektowaga	1967	..	....	....	.....	..	....	....	.....	..	....	....	.....	...	....	....	.....	...	....	....	.....
	1968	..	....	....	.....	1	20.5	20.5	.....	1	0	0	.....	4	0	0	.....	4	46	68	.....
Buffalo	1967	..	....	....	.....	..	....	....	.....	..	....	....	.....	...	....	....	.....	...	....	....	.....
	1968	..	....	....	.....	1	20.1	20.1	.....	1	0	0	.....	4	0	0	.....	4	59	75	.....
Niagara Falls (266)	1967	..	....	....	.....	..	....	....	.....	..	....	....	.....	...	....	....	.....	...	....	....	.....
	1968	..	....	....	.....	1	32.9	32.9	.....	1	0	0	.....	4	0	1	.....	4	78	95	.....
Niagara Falls (267)	1967	..	....	....	.....	..	....	....	.....	..	....	....	.....	...	....	....	.....	...	....	....	.....
	1968	..	....	....	.....	..	....	....	.....	..	....	....	.....	...	....	....	.....	...	....	....	.....

Table B–1 (continued). DATA SUMMARY

State/city	Year	Lead peroxide candle				Lead plates				Dustfall				Sticky paper				Rubber cracking			
		Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean
NEW YORK (continued)																					
Brooklyn	1967	12	2.0	5.9	3.6	...	....	....	.....	12	12.2	43.2	22.2	12	18	79	59	52	0	.239	.046
	1968	12	1.6	7.7	3.1	12	10	44	22	10	9.0	38.5	15.1	12	43	81	64	49	0	.318	.052
Mineola	1967	12	0.8	2.8	1.6	...	....	....	.....	12	1.5	10.2	3.9	12	3	43	25	49	0	.504	.093
	1968	11	0.2	3.6	1.5	10	6	24	11	12	1.1	6.5	3.0	12	4	54	32	49	0	.272	.063
White Plains	1967	12	1.0	2.6	1.5	...	....	....	.....	11	0.3	6.8	2.6	12	10	42	24	50	0	.549	.136
	1968	10	0.7	3.1	1.4	8	6	18	11	11	1.8	3.6	2.6	12	7	63	32	50	0	.285	.070
Albany	1967	12	0.9	1.9	1.4	...	....	....	.....	12	3.8	10.9	6.0	12	10	57	28	48	0	.435	.070
	1968	7	0.5	2.2	1.5	6	9	18	13	7	1.5	7.3	4.5	5	19	56	.....	26	0	.335	.030
Niagara Falls	1967	11	0.6	1.5	0.9	...	....	....	.....	11	3.2	15.3	6.5	8	23	62	37	36	0	.428	.104
	1968	11	0.5	2.2	1.0	11	5	14	8	12	2.7	9.6	5.8	12	18	64	39	52	0	.533	.089
Buffalo	1967	12	2.4	5.5	3.9	...	....	....	.....	12	6.2	13.5	10.0	11	33	74	55	41	0	.295	.037
	1968	10	2.0	6.3	3.8	8	15	44	30	10	2.7	10.8	7.8	10	45	81	56	46	0	.203	.040
Binghamton	1967	12	0.2	0.9	0.5	...	....	....	.....	12	2.9	7.4	5.0	12	5	35	20	50	0	.397	.072
	1968	9	0.0	1.3	0.6	11	0	10	4	11	2.1	7.2	4.7	8	9	53	28	36	0	.227	.064
Petersburg	1967	12	0.0	1.9	0.3	...	....	....	.....	12	0.9	8.0	2.6	12	0	4	2	52	0	.411	.124
	1968	11	0.0	0.4	0.1	9	0	2	1	12	0.4	4.4	2.2	10	1	8	3	46	0	.411	.084
Albany	1967	12	0.8	3.0	1.7	...	....	....	.....	11	7.7	18.1	11.5	12	8	62	34	49	0	.257	.059
	1968	12	0.5	3.9	1.6	11	5	26	11	12	6.0	18.0	8.4	12	9	68	36	51	0	.199	.054
Long Island	1967	5	0.4	0.9	.....	...	....	....	.....	5	2.2	5.7	.....	5	5	24	.....	23	0	.655	.....
	1968	9	0.3	1.1	0.6	9	2	11	5	10	1.2	10.8	4.2	10	3	38	15	41	0	.683	.210
Ticonderoga	1967	3	0.4	0.7	.....	...	....	....	.....	3	1.0	6.8	.....	3	4	9	.....	9	0	0	.....
	1968	11	0.0	1.3	0.4	11	0	7	3	12	0.5	3.8	1.9	6	1	30	10	26	0	.426	.078
Rooseveltown	1967	3	0.6	0.9	.....	...	....	....	.....	2	2.0	2.5	.....	3	7	11	.....	11	0	.057	.....
	1968	11	0.0	1.8	0.6	5	0	13	.....	10	0.9	3.1	2.1	12	5	30	14	50	0	.504	.092
Cheektowaga	1967	...	....	....	.....	...	....	....	.....	...	....	....	.....	...	....	....	.....	...	....	....	.....
	1968	4	0.7	1.0	.....	4	5	6	.....	4	5.7	11.8	.....	3	15	23	.....	16	0	.132	.....
Buffalo	1967	...	....	....	.....	...	....	....	.....	...	....	....	.....	...	....	....	.....	...	....	....	.....
	1968	3	0.9	1.4	.....	4	7	14	.....	4	5.6	6.4	.....	4	20	47	.....	16	0	.287	.....
Niagara Falls (266)	1967	...	....	....	.....	...	....	....	.....	...	....	....	.....	...	....	....	.....	...	....	....	.....
	1968	3	0.6	1.8	.....	4	7	16	.....	4	14.9	32.2	.....	4	54	75	.....	16	0	.132	.....
Niagara Falls (267)	1967	...	....	....	.....	...	....	....	.....	...	....	....	.....	...	....	....	.....	...	....	....	.....
	1968	...	....	....	.....	...	....	....	.....	...	....	....	.....	...	....	....	.....	...	....	....	.....

Table B–1 (continued). DATA SUMMARY

State/city	Year	Zinc				Annual steel				Quarterly steel				Fabric No. 1				Fabric No. 2			
		Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean
NORTH CAROLINA																					
Charlotte	1967	1	....	....	1.0	1	....	....	22	4	16	37	28	4	13.5	18.0	16.2	4	2.1	6.4	3.7
(31)	1968	1	....	....	0.9	1	....	....	18	4	9	27	18	4	19.5	23.1	21.3	..	....	....	.....
Charlotte	1967	1	....	....	1.1	1	....	....	31	4	22	46	33	4	12.8	16.7	15.0	4	1.9	4.7	2.8
(32)	1968	1	....	....	1.2	1	....	....	22	4	8	28	18	4	18.3	20.6	19.8	..	....	....	.....
Spray	1967	..	....	....	.....	..	....	....	.....	..	....	....	.....	1	14.0	14.0	.....	1	3.0	3.0	.....
	1968	..	....	....	.....	..	....	....	.....	3	18	29	23	..	....	....	.....	..	....	....	.....
Chapel Hill	1967	..	....	....	.....	..	....	....	.....	..	....	....	.....	..	....	....	.....	..	....	....	.....
(237)	1968	1	....	....	1.2	1	....	....	21	3	17	18	18	2	16.5	20.3	18.4	..	....	....	.....
Chapel Hill	1967	..	....	....	.....	..	....	....	.....	..	....	....	.....	..	....	....	.....	..	....	....	.....
(238)	1968	..	....	....	.....	1	....	....	18	3	8	14	10	1	18.1	18.1	.....	..	....	....	.....
NORTH DAKOTA																					
Grand Forks	1967	..	....	....	.....	..	....	....	.....	..	....	....	.....	1	15.0	15.0	.....	1	0.6	0.6	.....
	1968	1	....	....	0.7	1	....	....	17	4	7	30	14	3	15.9	22.0	18.2	..	....	....	.....
Fargo	1967	..	....	....	.....	..	....	....	.....	..	....	....	.....	1	15.0	15.0	.....	1	5.5	5.5	.....
	1968	1	....	....	0.7	1	....	....	17	4	6	23	13	1	19.6	20.3	20.1	..	....	....	.....
OHIO																					
Cincinnati	1967	1	....	....	1.6	1	....	....	20	4	24	55	43	4	13.5	17.0	15.6	4	2.8	5.5	4.1
(6)	1968	1	....	....	1.9	1	....	....	18	3	19	33	25	4	15.3	18.6	17.5	..	....	....	.....
Toledo	1967	1	....	....	2.0	1	....	....	40	4	46	80	58	4	16.6	20.3	18.8	4	1.7	10.5	5.0
	1968	..	....	....	.....	1	....	....	43	4	56	79	66	4	20.6	24.1	22.2	..	....	....	.....
Columbus	1967	1	....	....	1.5	1	....	....	31	4	33	47	40	4	13.1	16.4	14.8	4	1.3	2.9	1.9
	1968	1	....	....	1.5	1	....	....	34	4	41	46	44	3	15.9	22.0	18.0	..	....	....	.....
Youngstown	1967	1	....	....	2.9	1	....	....	50	4	56	77	69	4	13.0	16.7	15.3	4	4.0	7.2	5.5
	1968	1	....	....	7.1	1	....	....	45	4	40	102	72	4	16.8	22.6	19.7	..	....	....	.....
Steubenville	1967	1	....	....	3.5	1	....	....	61	4	84	111	94	4	12.4	16.6	14.8	4	2.8	6.3	5.2
	1968	1	....	....	6.0	1	....	....	62	3	93	132	113	4	17.8	21.5	19.5	..	....	....	.....
Marietta	1967	1	....	....	5.5	1	....	....	46	4	3	93	53	3	11.7	16.6	14.1	4	0.7	2.4	1.6
	1968	1	....	....	1.6	..	....	....	.....	4	44	158	90	3	17.9	23.9	20.9	..	....	....	.....
Ironton	1967	1	....	....	1.2	1	....	....	38	4	64	80	72	3	15.5	21.5	13.8	3	2.4	7.0	4.0
	1968	1	....	....	1.9	1	....	....	51	3	95	114	106	3	19.4	28.3	23.2	..	....	....	.....
Cincinnati	1967	1	....	....	2.8	1	....	....	30	4	48	59	52	4	16.8	21.9	19.2	4	1.4	3.9	2.6
(70)	1968	1	....	....	1.5	1	....	....	36	4	39	54	46	2	19.0	24.9	22.0	..	....	....	.....

Table B–1 (continued). DATA SUMMARY

State/city	Year	Fabric No. 3				Fabric No. 4				Fabric No. 5				Fabric No. 6				Fabric No. 7			
		Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean
NORTH CAROLINA																					
Charlotte (31)	1967	4	18.8	24.3	22.2	4	12.9	31.2	20.2	--	----	----	----	--	----	----	----	--	----	----	----
	1968	4	22.8	28.7	26.6	--	----	----	----	4	7.5	15.2	10.6	4	7.4	17.1	11.3	4	4.2	20.8	13.6
Charlotte (32)	1967	4	23.0	29.8	26.6	4	16.2	29.6	21.8	--	----	----	----	--	----	----	----	--	----	----	----
	1968	4	24.4	37.1	30.2	--	----	----	----	4	8.1	15.7	12.2	4	6.9	12.6	9.9	4	3.3	10.5	7.4
Spray	1967	1	26.6	26.6	----	1	28.5	28.5	----	--	----	----	----	--	----	----	----	--	----	----	----
	1968	1	44.4	44.4	----	--	----	----	----	--	----	----	----	1	10.8	10.8	----	--	----	----	----
Chapel Hill (237)	1967	--	----	----	----	--	----	----	----	--	----	----	----	--	----	----	----	--	----	----	----
	1968	3	20.3	22.9	21.7	--	----	----	----	3	13.1	19.4	16.5	3	3.4	6.4	4.7	3	3.5	6.9	5.3
Chapel Hill (238)	1967	--	----	----	----	--	----	----	----	--	----	----	----	--	----	----	----	--	----	----	----
	1968	1	20.9	20.9	----	--	----	----	----	1	15.5	15.5	----	1	4.7	4.7	----	1	3.6	3.6	----
NORTH DAKOTA																					
Grand Forks	1967	1	10.5	10.5	----	1	10.2	10.2	----	--	----	----	----	--	----	----	----	--	----	----	----
	1968	3	14.7	18.5	17.2	--	----	----	----	3	7.2	11.5	9.5	4	5.1	9.0	7.7	4	6.1	12.1	7.8
Fargo	1967	1	9.7	9.7	----	1	6.5	6.5	----	--	----	----	----	--	----	----	----	--	----	----	----
	1968	3	18.2	23.9	20.7	--	----	----	----	3	5.8	9.9	8.5	4	5.2	15.4	10.4	3	9.9	16.9	13.3
OHIO																					
Cincinnati (6)	1967	4	28.0	36.5	30.4	4	10.3	20.2	14.8	--	----	----	----	--	----	----	----	--	----	----	----
	1968	4	32.0	39.6	34.8	--	----	----	----	3	5.3	11.9	9.3	3	8.8	16.5	12.1	4	4.6	12.8	7.7
Toledo	1967	4	19.1	21.5	20.5	4	12.1	22.3	16.6	--	----	----	----	--	----	----	----	--	----	----	----
	1968	4	19.3	36.4	26.9	--	----	----	----	4	6.6	12.7	9.6	4	7.8	13.3	10.5	4	4.6	14.1	10.3
Columbus	1967	4	17.5	23.2	19.6	4	14 0	24.4	18.5	--	----	----	----	--	----	----	----	--	----	----	----
	1968	3	23.6	26.8	25.5	--	----	----	----	3	6.0	13.6	9.1	3	8.4	9.2	8.7	3	3.7	13.2	8.6
Youngstown	1967	4	26.9	37.7	31.0	4	10.2	22.2	15.5	--	----	----	----	--	----	----	----	--	----	----	----
	1968	4	33.7	43.7	38.7	--	----	----	----	4	3.8	12.6	7.9	4	10.3	14.8	12.9	4	12.7	24.1	18.2
Steubenville	1967	4	22.0	36.6	30.1	3	10.1	21.3	15.8	--	----	----	----	--	----	----	----	--	----	----	----
	1968	3	33.1	44.4	39.7	--	----	----	----	4	4.6	11.5	8.0	4	6.7	12.4	9.4	4	7.8	11.6	9.9
Marietta	1967	3	21.0	25.7	22.9	3	12.7	28.6	20.4	--	----	----	----	--	----	----	----	--	----	----	----
	1968	3	24.9	27.2	25.7	--	----	----	----	3	5.7	17.0	12.1	4	6.4	10.3	8.7	4	3.8	10.1	7.2
Ironton	1967	4	11.4	24.0	17.8	4	9.8	23.1	15.4	--	----	----	----	--	----	----	----	--	----	----	----
	1968	3	23.8	28.4	26.3	--	----	----	----	3	6.5	11.8	8.4	3	8.6	13.4	10.6	3	10.1	14.4	11.8
Cincinnati (70)	1967	4	17.5	47.6	27.3	3	9.1	20.9	14.0	--	----	----	----	--	----	----	----	--	----	----	----
	1968	2	25.9	29.0	27.4	--	----	----	----	--	----	----	----	2	8.2	12.9	10.6	4	4.5	11.3	8.0

Table B–1 (continued). DATA SUMMARY

State/city	Year	Fabric No. 8				Fabric No. 9				Quarterly nylon				Monthly nylon				Silver tarnishing			
		Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean
NORTH CAROLINA																					
Charlotte	1967	..	....	....	.....	..	....	....	.....	2	0	0	0	11	0	0	0	12	8	76	60
(31)	1968	4	4.1	10.4	6.9	4	16.9	28.3	21.6	3	0	1	0.3	12	0	0	0	12	42	78	59
Charlotte	1967	..	....	....	.....	..	....	....	.....	4	0	0	0	12	0	0	0	12	43	80	61
(32)	1968	4	5.7	24.8	12.8	4	18.0	27.3	22.7	4	0	0	0	12	0	0	0	12	46	79	59
Spray	1967	..	....	....	.....	..	....	....	.....	1	0	0	.....	5	0	0	.....	3	38	42	.....
	1968	..	....	....	.....	..	....	....	.....	4	0	0	0	11	0	0	0	12	22	64	42
Chapel Hill	1967	..	....	....	.....	..	....	....	.....	..	....	....	.....	...	....	....	.....	...	....	....	.....
(237)	1968	3	8.4	19.6	14.1	3	20.2	30.0	25.3	3	0	11	3.7	9	0	0	0	9	24	37	33
Chapel Hill	1967	..	....	....	.....	..	....	....	.....	..	....	....	.....	...	....	....	.....	...	....	....	.....
(238)	1968	1	10.3	10.3	.....	2	19.4	22.7	21.0	3	0	0	0	9	0	0	0	9	10	40	25
NORTH DAKOTA																					
Grand Forks	1967	..	....	....	.....	..	....	....	.....	1	0	0	.....	2	0	0	.....	2	29	36	.....
	1968	3	5.1	7.1	6.2	3	7.5	21.0	15.8	4	0	0	0	12	0	0	0	12	12	47	26
Fargo	1967	..	....	....	.....	..	....	....	.....	1	0	0	.....	2	0	0	.....	2	21	30	.....
	1968	3	8.7	13.9	10.5	4	10.1	26.0	19.8	3	0	0	0	12	0	0	0	12	13	33	23
OHIO																					
Cincinnati	1967	..	....	....	.....	..	....	....	.....	4	0	0	0	12	0	0	0	12	30	83	57
(6)	1968	4	3.1	10.7	6.2	4	13.6	21.8	17.3	4	0	2	0.5	12	0	0	0	12	34	81	55
Toledo	1967	..	....	....	.....	..	....	....	.....	4	0	3	0.8	12	0	0	0	12	53	89	78
	1968	4	6.6	12.2	9.2	4	17.6	25.4	22.9	4	0	1	0.2	12	0	0	0	12	41	95	71
Columbus	1967	..	....	....	.....	..	....	....	.....	4	0	0	0	12	0	0	0	12	30	93	64
	1968	3	5.4	8.5	6.8	3	10.8	19.3	15.0	4	0	0	0	12	0	0	0	12	33	63	48
Youngstown	1967	..	....	....	.....	..	....	....	.....	4	0	0	0	12	0	0	0	12	74	90	82
	1968	4	7.2	10.2	8.4	4	15.7	25.2	19.9	4	0	0	0	12	0	0	0	12	73	92	81
Steubenville	1967	..	....	....	.....	..	....	....	.....	3	0	1	0.3	12	0	2	0.2	12	65	94	80
	1968	4	4.0	10.2	7.4	4	13.9	29.0	20.8	4	0	7	1.8	12	0	0	0	12	81	92	86
Marietta	1967	..	....	....	.....	..	....	....	.....	4	0	0	0	11	0	0	0	12	35	87	57
	1968	3	5.8	10.0	7.8	3	17.0	34.9	25.3	3	0	0	0	12	0	0	0	12	33	76	58
Ironton	1967	..	....	....	.....	..	....	....	.....	4	0	0	0	12	0	2	0.2	12	77	95	88
	1968	3	4.3	9.3	6.2	2	22.9	32.2	27.6	2	0	2	1.0	11	0	3	0.3	10	84	95	90
Cincinnati	1967	..	....	....	.....	..	....	....	.....	4	0	0	0	12	0	0	0	11	48	80	63
(70)	1968	2	5.9	6.3	6.1	2	14.3	33.2	23.8	4	0	2	0.5	11	0	0	0	10	22	86	59

Table B–1 (continued). DATA SUMMARY

State/city	Year	Lead peroxide candle				Lead plates				Dustfall				Sticky paper				Rubber cracking			
		Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean
NORTH CAROLINA																					
Charlotte (31)	1967	12	0.1	0.7	0.4	...	...	...	...	12	2.7	8.6	5.3	12	12	52	29	52	0	.290	.096
	1968	11	0.0	0.8	0.2	10	2	5	3	12	3.8	9.5	6.2	10	8	65	38	46	0	.300	.107
Charlotte (32)	1967	12	0.0	0.5	0.3	...	...	...	...	12	1.7	4.9	3.2	12	11	43	24	51	0	.368	.124
	1968	12	0.0	0.8	0.3	11	0	6	3	12	2.1	5.5	3.4	10	6	51	29	46	0	.366	.117
Spray	1967	5	0.0	0.3	...	...	...	...	...	5	1.0	7.9	...	5	2	15	...	18	0	.244	...
	1968	11	0.0	0.4	0.1	10	0	3	1	11	2.0	9.3	4.6	11	1	44	17	49	0	.349	.090
Chapel Hill (237)	1967	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	1968	9	0.0	0.1	0.0	9	0	2	0	9	0.9	4.3	2.1	9	1	10	3	37	0	.469	.118
Chapel Hill (238)	1967	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	1968	9	0.0	0.1	0.0	6	0	1	0	9	1.8	3.8	2.8	8	1	29	10	37	0	.328	.090
NORTH DAKOTA																					
Grand Forks (82)	1967	2	0.2	0.3	...	...	...	...	...	2	2.5	4.5	...	3	5	56	...	10	0	0	...
	1968	9	0.0	0.4	0.1	11	0	4	1	11	0.8	14.2	8.0	10	5	57	25	50	0	.250	.028
Fargo	1967	2	0.3	0.4	...	...	...	...	...	2	1.9	2.5	...	3	35	56	...	7	0	.058	...
	1968	11	0.0	0.4	0.1	11	0	2	1	12	1.0	9.2	4.7	12	16	73	43	50	0	.323	.044
OHIO																					
Cincinnati (6)	1967	11	0.6	1.5	0.9	...	...	...	...	12	3.9	36.0	8.2	12	28	67	43	48	0	.285	.099
	1968	12	0.0	2.2	0.8	11	2	15	6	12	3.2	8.7	5.6	12	8	78	42	50	0	.194	.058
Toledo	1967	12	0.9	2.6	1.4	...	...	...	...	11	6.5	13.3	8.6	12	27	70	44	50	0	.350	.078
	1968	12	0.8	1.9	1.2	12	6	17	10	12	6.7	12.5	9.1	12	36	83	52	52	0	.216	.063
Columbus	1967	12	0.3	1.2	0.5	...	...	...	...	11	2.0	6.6	4.0	12	7	49	17	52	0	.343	.092
	1968	12	0.2	1.5	0.5	11	2	10	4	12	2.9	6.2	4.5	12	6	48	24	52	0	.227	.056
Youngstown	1967	12	0.7	1.8	1.3	...	...	...	...	12	8.9	27.3	15.4	12	21	77	54	52	0	.305	.079
	1968	11	0.8	2.2	1.3	11	5	19	10	12	10.6	26.7	15.5	12	50	85	65	52	0	.237	.057
Steubenville	1967	12	1.1	3.0	2.0	...	...	...	...	12	11.0	25.4	17.5	12	20	62	39	52	0	.285	.081
	1968	12	1.0	4.1	1.8	9	6	31	14	12	8.5	30.6	19.4	12	14	79	52	44	0	.190	.059
Marietta	1967	11	0.4	1.0	0.7	...	...	...	...	12	3.3	8.7	5.4	10	3	31	12	32	0	.459	.088
	1968	10	0.5	1.4	0.7	11	2	8	5	12	2.1	9.2	5.4	9	3	31	16	42	0	.403	.062
Ironton	1967	12	0.7	1.6	1.0	...	...	...	...	12	2.7	39.9	21.2	12	29	86	68	50	0	.297	.088
	1968	9	0.7	1.7	1.0	9	4	10	8	10	1.4	32.0	22.4	8	68	90	80	41	0	.197	.025
Cincinnati (70)	1967	12	0.4	1.1	0.8	...	...	...	...	11	4.1	12.9	7.8	11	10	45	19	41	0	.323	.106
	1968	10	0.4	1.8	0.8	9	2	14	6	9	5.4	11.4	7.7	5	17	48	...	37	0	.290	.076

Table B–1 (continued). DATA SUMMARY

State/city	Year	Zinc				Annual steel				Quarterly steel				Fabric No. 1				Fabric No. 2			
		Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean
OHIO (continued)																					
Cincinnati (155)	1967	--	----	----	----	--	----	----	----	--	----	----	----	--	----	----	----	--	----	----	----
	1968	1	----	----	2.1	1	----	----	25	4	26	55	34	4	14.9	20.6	18.2	--	----	----	----
Mingo Junction	1967	--	----	----	----	--	----	----	----	--	----	----	----	--	----	----	----	--	----	----	----
	1968	1	----	----	4.5	1	----	----	73	4	121	162	139	4	14.8	20.7	17.8	--	----	----	----
Steubenville	1967	--	----	----	----	--	----	----	----	--	----	----	----	--	----	----	----	--	----	----	----
	1968	1	----	----	6.0	1	----	----	54	4	72	140	103	4	17.0	19.7	18.5	--	----	----	----
OKLAHOMA																					
Miami	1967	--	----	----	----	--	----	----	----	--	----	----	----	1	14.3	14.3	----	1	0.9	0.9	----
	1968	1	----	----	3.5	1	----	----	9	3	2	5	4	4	15.9	17.9	16.9	--	----	----	----
Sallisaw	1967	--	----	----	----	--	----	----	----	--	----	----	----	1	13.5	13.5	----	1	1.1	1.1	----
	1968	1	----	----	0.9	1	----	----	7	4	2	15	7	4	15.8	20.4	17.8	--	----	----	----
OREGON																					
Corvallis	1967	1	----	----	0.8	1	----	----	12	4	2	21	9	4	11.6	15.7	13.4	4	0.7	2.5	1.4
	1968	1	----	----	1.7	1	----	----	13	3	6	18	12	4	17.2	18.2	17.5	--	----	----	----
The Dalles	1967	1	----	----	1.0	1	----	----	20	4	1	64	28	4	10.6	15.9	12.7	4	1.0	1.8	1.5
	1968	1	----	----	0.7	1	----	----	12	4	5	15	10	4	15.4	18.4	17.2	--	----	----	----
Ranier	1967	1	----	----	1.9	1	----	----	34	4	15	59	37	4	12.6	19.0	15.3	4	0.8	1.4	1.1
	1968	1	----	----	1.8	--	----	----	----	3	19	45	31	3	18.5	18.8	18.6	--	----	----	----
Portland (82)	1967	1	----	----	1.1	1	----	----	26	4	24	61	38	4	12.4	15.7	13.7	4	2.2	3.3	2.8
	1968	1	----	----	1.8	1	----	----	23	4	16	45	30	3	18.6	19.6	19.1	--	----	----	----
Portland (83)	1967	1	----	----	1.3	1	----	----	29	4	11	64	39	4	12.7	16.9	14.3	4	0.8	1.8	1.2
	1968	1	----	----	3.8	1	----	----	28	4	26	52	38	4	18.5	19.0	18.8	--	----	----	----
PENNSYLVANIA																					
Chester	1967	1	----	----	3.8	1	----	----	54	4	71	98	79	3	12.4	19.0	15.3	4	1.9	8.8	5.3
	1968	1	----	----	3.4	1	----	----	41	2	74	146	110	3	17.9	21.8	19.6	--	----	----	----
Philadelphia (11)	1967	1	----	----	4.2	1	----	----	49	4	65	102	78	4	12.1	18.0	14.9	4	2.8	6.3	4.3
	1968	1	----	----	3.1	--	----	----	----	3	51	91	71	4	17.0	24.2	20.2	--	----	----	----
Philadelphia (12)	1967	1	----	----	3.7	1	----	----	107	4	71	90	80	4	13.2	17.8	15.3	4	1.9	6.9	4.0
	1968	1	----	----	3.7	1	----	----	45	4	18	106	64	4	15.6	21.5	18.5	--	----	----	----
Philadelphia (13)	1967	1	----	----	3.9	1	----	----	39	4	56	78	65	4	13.0	18.4	15.6	4	3.3	6.7	5.2
	1968	1	----	----	2.9	1	----	----	34	3	48	64	58	4	15.8	20.6	18.4	--	----	----	----
Easton	1967	1	----	----	2.7	1	----	----	50	4	61	102	80	3	13.3	17.4	15.7	3	1.4	3.7	2.8
	1968	1	----	----	3.0	1	----	----	43	4	50	76	68	4	18.9	21.7	20.3	--	----	----	----

Table B–1 (continued). DATA SUMMARY

State/city	Year	Fabric No. 3				Fabric No. 4				Fabric No. 5				Fabric No. 6				Fabric No. 7			
		Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean
OHIO (continued)																					
Cincinnati (155)	1967	1	30.5	30.5	-----	1	10.2	10.2	-----	--	----	----	-----	--	----	----	-----	--	----	----	-----
	1968	3	27.7	32.3	30.4	--	----	----	-----	4	5.3	13.5	8.7	2	7.5	8.1	7.8	4	2.8	14.4	7.9
Mingo Junction	1967	--	----	----	-----	--	----	----	-----	--	----	----	-----	--	----	----	-----	--	----	----	-----
	1968	4	28.6	44.0	37.6	--	----	----	-----	3	5.3	11.3	7.6	4	8.9	15.6	12.2	4	8.2	23.9	14.6
Steubenville	1967	--	----	----	-----	--	----	----	-----	--	----	----	-----	--	----	----	-----	--	----	----	-----
	1968	4	30.1	35.9	32.8	--	----	----	-----	4	7.8	14.7	11.5	4	9.3	15.4	13.0	3	7.6	14.7	12.3
OKLAHOMA																					
Miami	1967	1	9.2	9.2	-----	1	11.5	11.5	-----	--	----	----	-----	--	----	----	-----	--	----	----	-----
	1968	4	14.2	18.8	16.8	--	----	----	-----	4	10.7	14.2	12.3	4	3.7	8.7	6.4	4	3.8	8.6	5.5
Sallisaw	1967	1	10.1	10.1	-----	1	14.2	14.2	-----	--	----	----	-----	--	----	----	-----	--	----	----	-----
	1968	4	14.4	18.7	16.1	--	----	----	-----	3	12.9	16.4	15.2	4	3.7	7.0	5.3	4	2.5	7.9	5.8
OREGON																					
Corvallis	1967	4	11.8	12.9	12.3	4	13.0	17.8	15.4	--	----	----	-----	--	----	----	-----	--	----	----	-----
	1968	4	13.3	18.3	15.2	--	----	----	-----	4	8.5	11.9	10.2	4	4.4	9.2	6.2	4	2.6	10.8	5.3
The Dalles	1967	4	12.5	13.6	13.2	3	10.6	17.0	14.0	--	----	----	-----	--	----	----	-----	--	----	----	-----
	1968	4	16.3	18.8	17.4	--	----	----	-----	3	5.1	12.4	9.8	4	5.5	8.8	7.0	4	4.2	13.8	8.4
Ranier	1967	4	12.0	16.1	13.7	4	14.5	20.6	16.4	--	----	----	-----	--	----	----	-----	--	----	----	-----
	1968	2	14.1	15.8	15.0	--	----	----	-----	3	9.2	12.0	10.5	3	4.6	7.2	5.8	3	3.1	13.6	6.8
Portland (82)	1967	4	17.1	20.0	18.8	4	8.2	16.1	11.4	--	----	----	-----	--	----	----	-----	--	----	----	-----
	1968	3	21.1	22.9	22.0	--	----	----	-----	3	4.5	9.0	7.3	3	7.5	11.7	9.4	2	5.7	9.3	7.5
Portland (83)	1967	4	14.5	19.2	15.8	4	13.6	18.8	15.6	--	----	----	-----	--	----	----	-----	--	----	----	-----
	1968	4	15.7	18.4	17.4	--	----	----	-----	4	9.0	11.3	10.5	4	4.5	9.1	6.5	4	2.7	7.3	4.3
PENNSYLVANIA																					
Chester	1967	4	28.5	42.3	34.2	4	11.7	28.7	18.5	--	----	----	-----	--	----	----	-----	--	----	----	-----
	1968	3	39.8	46.8	43.1	--	----	----	-----	3	6.3	16.2	9.8	3	9.7	11.2	10.3	4	6.0	16.5	10.8
Philadelphia (11)	1967	4	28.7	41.1	34.9	4	8.1	22.3	14.6	--	----	----	-----	--	----	----	-----	--	----	----	-----
	1968	4	40.3	42.8	41.2	--	----	----	-----	4	4.1	13.2	8.5	4	9.7	14.9	11.4	4	3.6	14.8	7.8
Philadelphia (12)	1967	4	35.0	49.6	32.1	4	11.0	24.1	16.4	--	----	----	-----	--	----	----	-----	--	----	----	-----
	1968	4	45.9	56.1	50.2	--	----	----	-----	4	5.4	13.9	9.6	4	8.2	14.7	11.5	4	4.1	14.2	8.6
Philadelphia (13)	1967	4	33.1	40.7	35.9	3	9.1	21.4	15.3	--	----	----	-----	--	----	----	-----	--	----	----	-----
	1968	4	45.1	52.3	47.9	--	----	----	-----	4	4.1	13.4	8.8	4	11.5	13.4	12.5	4	5.2	15.6	10.7
Easton	1967	3	19.6	25.3	22.3	3	13.9	26.6	20.2	--	----	----	-----	--	----	----	-----	--	----	----	-----
	1968	4	27.5	32.4	29.8	--	----	----	-----	4	6.8	13.5	10.3	4	8.2	14.4	11.0	4	3.1	12.0	7.6

Table B–1 (continued). DATA SUMMARY

State/city	Year	Fabric No. 8				Fabric No. 9				Quarterly nylon				Monthly nylon				Silver tarnishing			
		Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean
OHIO (continued)																					
Cincinnati	1967	..	....	....	....	..	....	....	....	1	0	0	....	5	0	0	....	4	27	63	....
(155)	1968	4	4.4	8.0	6.1	4	13.6	27.1	20.2	4	0	0	0	12	0	1	0.2	12	40	80	56
Mingo Junction	1967	..	....	....	....	..	....	....	....	..	....	....	....	1	0	0	....	1	79	79	....
	1968	4	8.7	14.1	11.5	4	15.1	32.1	22.1	4	0	0	0	12	0	0	0	12	73	91	82
Steubenville	1967	..	....	....	....	..	....	....	....	..	....	....	....	1	0	0	....	1	76	76	....
	1968	4	8.7	22.7	14.6	4	14.4	35.9	22.7	4	0	4	1.5	12	0	0	0	12	59	88	78
OKLAHOMA																					
Miami	1967	..	....	....	....	..	....	....	....	..	....	....	....	2	0	1	....	1	7	7	....
	1968	4	3.4	8.3	6.7	4	10.8	23.8	18.0	4	0	1	0.2	12	0	0	0	12	13	33	22
Sallisaw	1967	..	....	....	....	..	....	....	....	..	....	....	....	2	0	0	....	2	28	39	....
	1968	4	3.8	7.8	6.1	4	11.8	25.7	19.5	4	0	3	0.8	11	0	1	0.2	12	17	40	30
OREGON																					
Corvallis	1967	..	....	....	....	..	....	....	....	4	0	0	0	10	0	0	0	12	10	49	28
	1968	4	3.4	7.5	5.6	4	13.6	19.3	15.8	4	0	5	1.2	12	0	1	0.5	12	15	50	27
The Dalles	1967	..	....	....	....	..	....	....	....	4	0	1	0.2	11	0	0	0	12	10	71	31
	1968	4	2.2	8.0	5.6	4	15.0	20.5	16.4	4	0	1	0.2	12	0	1	0.5	12	10	55	28
Ranier	1967	..	....	....	....	..	....	....	....	4	0	0	0	12	0	1	0.1	12	32	93	74
	1968	3	2.7	10.0	5.9	3	15.7	17.7	17.0	4	0	1	0.2	12	0	2	0.8	11	65	94	78
Portland	1967	..	....	....	....	..	....	....	....	4	0	1	0.5	11	0	0	0	12	24	88	56
(82)	1968	3	4.6	9.5	7.0	3	17.3	19.2	18.3	4	0	1	0.2	12	0	2	0.8	12	28	83	53
Portland	1967	..	....	....	....	..	....	....	....	4	0	0	0	12	0	0	0	12	32	81	62
(83)	1968	4	3.3	9.6	5.6	4	16.8	23.6	20.1	4	0	3	1.8	12	0	3	1.5	12	33	89	59
PENNSYLVANIA																					
Chester	1967	..	....	....	....	..	....	....	....	3	5	14	10.3	10	0	4	1.3	12	24	87	63
	1968	2	4.8	6.9	5.8	3	14.7	32.6	23.1	4	0	13	7.8	12	0	9	1.9	12	36	88	69
Philadelphia	1967	..	....	....	....	..	....	....	....	4	1	37	20.2	12	0	22	8.0	12	60	93	80
(11)	1968	4	2.4	9.7	6.4	4	13.2	31.6	22.6	4	3	36	15.5	12	0	14	4.4	11	42	89	81
Philadelphia	1967	..	....	....	....	..	....	....	....	4	0	7	2.2	12	0	4	0.7	12	64	93	77
(12)	1968	4	5.1	10.8	7.5	4	14.8	31.5	24.4	4	1	9	3.7	11	0	4	0.6	12	52	91	80
Philadelphia	1967	..	....	....	....	..	....	....	....	4	3	14	7.0	11	0	4	1.7	12	76	93	85
(13)	1968	4	5.3	7.6	6.0	3	19.5	35.3	26.7	4	0	5	1.8	12	0	3	0.5	12	52	93	84
Easton	1967	..	....	....	....	..	....	....	....	4	1	8	3.5	11	0	5	1.1	12	48	84	70
	1968	4	3.1	10.1	6.8	4	13.5	28.6	21.9	4	3	9	5.0	12	0	2	0.6	11	39	82	67

Table B–1 (continued). DATA SUMMARY

State/city	Year	Lead peroxide candle				Lead plates				Dustfall				Sticky paper				Rubber cracking			
		Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean
OHIO (continued)																					
Cincinnati	1967	4	0.5	1.0	-----	4	6	6	-----	4	6.0	6.5	-----	5	20	36	-----	18	0	.244	-----
(155)	1968	12	0.2	1.7	0.7	10	2	10	5	12	4.6	11.4	7.1	12	19	62	36	51	0	.196	.049
Mingo Junction	1967	1	2.8	2.8	-----	---	-----	-----	-----	---	-----	-----	-----	---	-----	-----	-----	5	0	0	-----
	1968	12	0.8	4.6	1.8	11	4	33	14	12	17.7	35.1	25.9	12	21	75	46	49	0	.191	.049
Steubenville	1967	1	1.8	1.8	-----	---	-----	-----	-----	---	-----	-----	-----	---	-----	-----	-----	4	0	0	-----
	1968	12	0.8	2.7	1.4	10	6	19	10	11	2.1	6.9	5.4	12	8	55	31	51	0	.431	.114
OKLAHOMA																					
Miami	1967	1	2.0	2.0	-----	---	-----	-----	-----	2	3.0	3.4	-----	2	2	3	-----	8	0	0	-----
	1968	12	0.0	0.2	0.0	12	0	2	0	11	3.1	7.3	4.7	12	3	42	16	51	0	.391	.086
Sallisaw	1967	1	0.0	0.0	-----	---	-----	-----	-----	2	1.8	1.8	-----	3	1	18	-----	7	0	0	-----
	1968	12	0.0	0.1	0.0	12	0	2	0	10	1.0	5.2	2.6	11	1	32	8	48	0	.620	.127
OREGON																					
Corvallis	1967	12	0.0	0.1	0.0	---	-----	-----	-----	12	0.7	3.2	1.7	12	1	16	8	51	0	.276	.072
	1968	10	0.0	0.1	0.0	11	0	1	0	12	0.6	3.8	1.6	11	1	11	6	47	0	.242	.026
The Dalles	1967	12	0.0	0.4	0.2	---	-----	-----	-----	12	0.6	2.5	1.5	12	1	32	22	51	0	.471	.110
	1968	12	0.0	0.4	0.1	12	0	2	1	12	1.1	7.2	2.3	12	6	47	23	52	0	.302	.055
Ranier	1967	12	0.0	0.3	0.2	---	-----	-----	-----	12	1.1	2.7	1.9	12	3	30	14	47	0	.318	.077
	1968	11	0.0	0.2	0.1	8	0	2	1	12	0.2	7.2	2.6	9	1	33	16	46	0	.164	.021
Portland	1967	12	0.1	0.9	0.6	---	-----	-----	-----	11	1.8	5.1	3.0	11	11	51	31	51	0	.222	.052
(82)	1968	12	0.0	0.8	0.5	9	2	6	4	12	2.8	25.7	7.9	11	4	55	30	49	0	.166	.029
Portland	1967	12	0.0	0.4	0.3	---	-----	-----	-----	12	0.1	3.6	1.8	12	3	25	8	52	0	.313	.065
(83)	1968	11	0.0	0.5	0.2	12	0	8	2	11	0.5	3.5	2.1	11	2	30	14	49	0	.187	.034
PENNSYLVANIA																					
Chester	1967	10	1.0	2.8	1.8	---	-----	-----	-----	12	3.9	12.2	7.6	11	10	61	38	52	0	.290	.085
	1968	12	1.0	3.7	1.8	10	7	21	14	12	3.6	11.3	6.5	11	12	65	45	50	0	.252	.074
Philadelphia	1967	12	1.0	4.0	2.2	---	-----	-----	-----	12	4.2	18.0	10.3	12	11	65	41	46	0	.260	.075
(11)	1968	10	1.3	4.8	2.2	9	9	29	16	11	5.1	19.7	9.7	10	4	81	49	45	0	.222	.062
Philadelphia	1967	12	0.9	4.4	2.3	---	-----	-----	-----	12	2.4	6.1	4.4	12	10	58	35	49	0	.272	.076
(12)	1968	11	1.2	4.1	2.0	11	9	22	13	12	2.6	9.0	4.5	12	10	59	41	49	0	.222	.058
Philadelphia	1967	12	1.2	4.5	2.6	---	-----	-----	-----	12	8.4	15.6	11.1	12	20	70	50	51	0	.260	.058
(13)	1968	12	1.5	4.6	2.5	11	10	28	15	11	3.9	18.1	9.6	12	33	77	53	49	0	.207	.067
Easton	1967	12	0.6	1.9	1.1	---	-----	-----	-----	12	4.1	14.3	7.2	12	4	50	22	52	0	.265	.080
	1968	12	0.2	2.5	1.1	9	3	15	7	12	1.4	21.6	6.7	12	1	57	28	51	0	.224	.068

Table B–1 (continued). DATA SUMMARY

State/city	Year	Zinc				Annual steel				Quarterly steel				Fabric No. 1				Fabric No. 2			
		Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean
PENNSYLVANIA (continued)																					
Sharon	1967	1	....	....	1.7	1	....	....	40	4	48	65	58	4	13.1	16.0	14.6	4	1.8	6.5	4.4
	1968	1	....	....	2.0	1	....	....	41	4	56	64	59	3	16.1	20.9	17.8	--	....	....	....
Kintnersville	1967	--	....	....	....	--	....	....	....	--	....	....	....	--	....	....	....	--	....	....	....
	1968	1	....	....	1.7	1	....	....	47	4	35	76	65	3	15.6	20.5	18.0	--	....	....	....
RHODE ISLAND																					
Westerly	1967	--	....	....	....	--	....	....	....	1	67	67	....	1	18.5	18.5	....	1	1.2	1.2	....
	1968	1	....	....	0.8	1	....	....	53	4	60	80	70	4	16.3	20.7	18.2	--	....	....	....
Pawtucket	1967	--	....	....	....	--	....	....	....	1	87	87	....	1	17.4	17.4	....	1	2.7	2.7	....
	1968	1	....	....	2.9	1	....	....	49	4	59	94	80	4	16.4	20.9	16.6	--	....	....	....
North Tiverton	1967	--	....	....	....	--	....	....	....	1	46	46	....	1	19.3	19.3	....	1	0.9	0.9	....
	1968	1	....	....	....	1	....	....	44	4	60	76	66	4	16.6	21.8	19.4	--	....	....	....
Block Island	1967	--	....	....	....	--	....	....	....	1	61	61	....	1	20.0	20.0	....	1	1.0	1.0	....
	1968	1	....	....	2.5	1	....	....	55	4	66	76	71	3	19.2	23.6	21.4	--	....	....	....
SOUTH CAROLINA																					
Rock Hill	1967	1	....	....	1.2	1	....	....	26	4	13	39	28	4	12.9	17.9	15.1	4	1.5	4.8	2.6
	1968	1	....	....	1.6	1	....	....	22	4	14	20	18	4	17.4	20.0	18.5	--	....	....	....
North Augusta	1967	1	....	....	1.0	1	....	....	12	3	10	46	26	3	13.2	18.4	16.1	3	0.8	1.4	1.0
	1968	1	....	....	1.3	1	....	....	20	3	12	17	14	4	15.8	20.2	18.0	--	....	....	....
SOUTH DAKOTA																					
Sioux Falls	1967	--	....	....	....	--	....	....	....	--	....	....	....	1	15.3	15.3	....	1	2.5	2.5	....
	1968	1	....	....	0.5	1	....	....	2	4	2	4	2	4	16.5	19.3	17.8	--	....	....	....
Custer	1967	--	....	....	....	--	....	....	....	--	....	....	....	--	....	....	....	--	....	....	....
	1968	--	....	....	....	--	....	....	....	3	0	3	1	2	11.9	14.2	13.0	--	....	....	....
Milbank	1967	--	....	....	....	--	....	....	....	--	....	....	....	--	....	....	....	--	....	....	....
	1968	1	....	....	0.4	--	....	....	....	2	4	5	4	2	19.5	27.6	23.6	--	....	....	....
TENNESSEE																					
Volunteer Arsenal (107)	1967	1	....	....	4.2	1	....	....	63	2	58	89	73	3	24.9	25.9	25.4	3	1.2	2.1	1.8
	1968	1	....	....	15.4	1	....	....	59	3	37	79	54	4	25.2	29.3	26.6	--	....	....	....
Volunteer Arsenal (108)	1967	1	....	....	0.8	1	....	....	30	2	18	50	34	3	17.9	25.8	22.3	3	1.6	6.9	3.8
	1968	1	....	....	1.6	--	....	....	....	4	22	51	33	4	23.3	26.1	25.0	--	....	....	....
Volunteer Arsenal (109)	1967	1	....	....	1.0	1	....	....	37	2	24	38	31	4	12.3	18.0	15.8	4	0.8	1.9	1.3
	1968	1	....	....	4.6	1	....	....	35	4	27	42	35	4	18.1	21.5	19.6	--	....	....	....

Table B–1 (continued). DATA SUMMARY

State/city	Year	Fabric No. 3				Fabric No. 4				Fabric No. 5				Fabric No. 6				Fabric No. 7			
		Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean
PENNSYLVANIA (continued)																					
Sharon	1967	4	17.4	27.3	21.7	3	12.6	21.3	17.3	--	----	----	-----	--	----	----	-----	--	----	----	-----
	1968	3	25.9	32.8	28.2	--	----	----	-----	3	6.0	13.8	8.8	3	9.0	14.2	11.5	3	6.5	12.0	9.8
Kintnersville	1967	--	----	----	-----	--	----	----	-----	--	----	----	-----	--	----	----	-----	--	----	----	-----
	1968	4	23.0	29.8	26.3	--	----	----	-----	3	11.2	21.1	14.5	3	7.2	8.7	8.1	4	4.1	8.0	6.4
RHODE ISLAND																					
Westerly	1967	1	23.7	23.7	-----	1	26.1	26.1	-----	--	----	----	-----	--	----	----	-----	--	----	----	-----
	1968	4	29.3	35.2	33.3	--	----	----	-----	4	8.3	18.5	13.1	4	4.5	9.5	7.3	4	3.5	11.2	7.4
Pawtucket	1967	1	30.3	30.3	-----	1	22.6	22.6	-----	--	----	----	-----	--	----	----	-----	--	----	----	-----
	1968	4	31.6	43.9	36.6	--	----	----	-----	5	5.9	14.1	10.2	4	[illegible]	9.1	7.6	4	3.1	10.3	6.6
North Tiverton	1967	1	20.4	20.4	-----	1	26.0	26.0	-----	--	----	----	-----	--	----	----	-----	--	----	----	-----
	1968	3	27.4	32.1	29.6	--	----	----	-----	4	10.9	19.1	14.8	3	4.7	8.3	7.0	4	2.9	8.3	6.4
Block Island	1967	1	18.8	18.8	-----	1	30.6	30.6	-----	--	----	----	-----	--	----	----	-----	--	----	----	-----
	1968	4	28.2	36.8	31.1	--	----	----	-----	4	12.3	22.6	17.8	4	4.8	12.9	8.9	4	3.5	16.7	9.4
SOUTH CAROLINA																					
Rock Hill	1967	4	17.7	24.3	20.9	4	17.0	31.9	24.2	--	----	----	-----	--	----	----	-----	--	----	----	-----
	1968	4	24.1	30.2	26.4	--	----	----	-----	4	10.4	15	13.0	4	4.4	13.6	9.7	4	2.6	11.6	6.8
North Augusta	1967	3	17.8	23.3	20.4	3	19.7	27.1	22.2	--	----	----	-----	--	----	----	-----	--	----	----	-----
	1968	4	19.7	24.5	22.0	--	----	----	-----	3	9.6	14.2	12.6	4	5.9	9.4	7.0	4	2.7	9.4	6.8
SOUTH DAKOTA																					
Sioux Falls	1967	1	9.3	9.3	-----	1	7.5	7.5	-----	--	----	----	-----	--	----	----	-----	--	----	----	-----
	1968	4	17.4	19.3	18.3	--	----	----	-----	4	7.2	14.3	10.4	4	6.5	8.1	7.2	4	4.0	12.6	8.1
Custer	1967	--	----	----	-----	--	----	----	-----	--	----	----	-----	--	----	----	-----	--	----	----	-----
	1968	2	8.4	10.0	9.2	--	----	----	-----	2	11.1	13.6	12.4	2	3.7	5.2	4.4	2	7.3	7.6	7.4
Milbank	1967	--	----	----	-----	--	----	----	-----	--	----	----	-----	--	----	----	-----	--	----	----	-----
	1968	3	17.3	23.1	19.7	--	----	----	-----	1	13.4	13.4	-----	2	6.2	8.4	7.3	2	5.0	11.8	8.4
TENNESSEE																					
Volunteer Arsenal (107)	1967	3	21.8	35.7	27.2	2	23.6	24.4	24.0	--	----	----	-----	--	----	----	-----	--	----	----	-----
	1968	4	29.6	41.5	36.3	--	----	----	-----	4	8.0	12.5	10.2	4	4.9	9.1	7.0	4	2.8	10.8	6.3
Volunteer Arsenal (108)	1967	3	17.5	29.6	22.3	3	22.2	30.1	25.5	--	----	----	-----	--	----	----	-----	--	----	----	-----
	1968	4	23.7	40.2	31.8	--	----	----	-----	4	8.8	13.6	11.2	4	5.5	7.3	6.5	4	2.9	9.1	5.4
Volunteer Arsenal (109)	1967	4	23.3	29.8	25.6	3	12.3	23.5	19.4	--	----	----	-----	--	----	----	-----	--	----	----	-----
	1968	4	28.0	37.4	33.8	--	----	----	-----	4	8.7	12.1	10.4	4	4.8	5.6	5.0	4	2.9	7.5	6.2

Table B–1 (continued). DATA SUMMARY

State/city	Year	Fabric No. 8				Fabric No. 9				Quarterly nylon				Monthly nylon				Silver tarnishing			
		Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean
PENNSYLVANIA (continued)																					
Sharon	1967	..	....	....	....	..	....	....	....	4	0	1	0.2	12	0	1	0.1	12	23	56	44
	1968	2	3.9	5.3	4.6	2	16.7	27.1	21.9	4	0	0	0	12	0	2	0.5	12	20	59	44
Kintnersville	1967	..	....	....	....	..	....	....	....	..	....	....	....	...	....	....	....	...	....	....	....
	1968	4	6.4	18.9	12.0	4	15.6	27.8	21.8	4	0	1	0.2	10	0	2	0.3	10	32	77	55
RHODE ISLAND																					
Westerly	1967	..	....	....	....	..	....	....	....	1	1.0	1.0	....	3	0	2	....	2	32	34	....
	1968	4	9.1	17.4	13.4	3	15.4	25.7	19.1	4	0	4	1.0	12	0	2	0.3	11	31	57	42
Pawtucket	1967	..	....	....	....	..	....	....	....	1	1.0	1.0	....	3	0	1	....	2	35	52	....
	1968	4	7.0	12.1	9.1	4	13.4	25.5	18.4	4	0	6	1.8	12	0	1	0.2	12	32	55	48
North Tiverton	1967	..	....	....	....	..	....	....	....	1	0	0	....	3	0	0	....	2	30	45	....
	1968	4	8.6	20.6	15.0	4	13.0	27.3	21.7	4	0	0	0	12	0	0	0	12	30	67	41
Block Island	1967	..	....	....	....	..	....	....	....	1	0	0	....	3	0	0	....	2	29	44	....
	1968	4	10.0	23.4	17.9	4	12.4	33.6	22.8	4	0	0	0	12	0	2	0.2	12	30	60	41
SOUTH CAROLINA																					
Rock Hill	1967	..	....	....	....	..	....	....	....	4	0	0	0	12	0	0	0	12	36	82	60
	1968	4	8.0	16.7	11.5	4	15.1	27.7	21.9	4	0	2	0.5	11	0	0	0	12	18	84	58
North Augusta	1967	..	....	....	....	..	....	....	....	3	0	1	0.3	9	0	0	0	9	21	63	45
	1968	4	3.7	8.7	5.7	4	11.5	32.4	21.8	4	0	0	0	12	0	0	0	12	11	76	45
SOUTH DAKOTA																					
Sioux Falls	1967	..	....	....	....	..	....	....	....	..	....	....	....	2	0	0	....	2	18	29	....
	1968	4	3.2	18.3	8.2	4	8.5	21.7	16.0	3	0	4	1.3	11	0	0	0	12	9	52	25
Custer	1967	..	....	....	....	..	....	....	....	..	....	....	....	...	....	....	....	...	....	....	....
	1968	2	6.1	7.3	6.7	2	4.2	14.7	9.4	2	0	0	0	8	0	0	0	8	4	8	6
Milbank	1967	..	....	....	....	..	....	....	....	..	....	....	....	...	....	....	....	...	....	....	....
	1968	2	6.8	10.3	8.6	3	15.8	23.1	19.8	3	0	0	0	8	0	1	0.1	8	11	41	26
TENNESSEE																					
Volunteer Arsenal (107)	1967	..	....	....	....	..	....	....	....	4	3	30	15.5	10	0	20	5.8	11	52	88	70
	1968	4	4.7	20.6	14.1	4	14.5	30.1	25.6	4	0	51	24.2	12	0	31	8.2	12	46	82	65
Volunteer Arsenal (108)	1967	..	....	....	....	..	....	....	....	4	15	115	47.0	10	0	65	22.7	11	41	61	48
	1968	4	7.2	16.7	11.2	4	17.3	31.4	24.0	4	7	206	79.0	11	0	130	27.6	12	19	62	42
Volunteer Arsenal (109)	1967	..	....	....	....	..	....	....	....	3	47	235	111.0	10	0	185	41.8	11	33	72	49
	1968	4	3.9	18.2	12.5	4	12.9	31.2	23.1	4	43	255	99.0	12	5	223	34.2	12	25	65	44

Table B–1 (continued). DATA SUMMARY

State/city	Year	Lead peroxide candle				Lead plates				Dustfall				Sticky paper				Rubber cracking			
		Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean
PENNSYLVANIA (continued)																					
Sharon	1967	12	0.5	1.5	0.8	- - -	- - - -	- - - -	- - - - -	12	7.5	12.3	9.6	12	13	49	29	42	0	.249	.065
	1968	12	0.2	2.0	0.7	12	2	11	5	12	4.9	17.3	10.7	1	44	44	- - - - -	30	0	.356	.081
Kintnersville	1967	- - -	- - - -	- - - -	- - - - -	- - -	- - - -	- - - -	- - - - -	- - -	- - - -	- - - -	- - - - -	- - -	- - - -	- - - -	- - - - -	- - -	- - - -	- - - -	- - - - -
	1968	10	0.4	2.9	1.0	6	4	9	6	11	1.1	5.6	2.4	10	1	49	19	42	0	.449	.122
RHODE ISLAND																					
Westerly	1967	3	0.5	0.7	- - - - -	- - -	- - - -	- - - -	- - - - -	3	1.3	5.9	- - - - -	3	18	40	- - - - -	11	0	.126	- - - - -
	1968	11	0.0	0.9	0.5	11	0	8	4	12	2.0	7.1	3.4	12	16	63	38	52	0	.454	.115
Pawtucket	1967	3	0.9	1.4	- - - - -	- - -	- - - -	- - - -	- - - - -	3	6.3	9.2	- - - - -	3	18	41	- - - - -	12	0	.030	- - - - -
	1968	12	0.4	2.3	1.2	11	2	15	7	12	3.9	13.4	7.0	12	11	61	44	52	0	.277	.063
North Tiverton	1967	3	0.3	0.6	- - - - -	- - -	- - - -	- - - -	- - - - -	3	1.6	4.0	- - - - -	3	4	14	- - - - -	12	0	.169	- - - - -
	1968	12	0.2	1.4	0.6	11	2	8	4	11	1.2	9.9	3.2	11	1	49	16	52	0	.340	.104
Block Island	1967	3	0.4	0.5	- - - - -	- - -	- - - -	- - - -	- - - - -	2	3.3	3.3	- - - - -	4	6	11	- - - - -	9	0	.542	- - - - -
	1968	11	0.0	0.6	0.3	11	1	7	3	12	0.5	13.6	2.6	12	1	17	9	52	0	.572	.196
SOUTH CAROLINA																					
Rock Hill	1967	11	0.0	0.4	0.2	- - -	- - - -	- - - -	- - - - -	12	0.7	5.5	3.1	12	2	28	15	52	0	.426	.126
	1968	12	0.0	0.6	0.1	11	0	5	2	12	1.9	6.5	3.2	11	1	38	18	52	0	.340	.080
North Augusta	1967	9	0.0	0.2	0.0	- - -	- - - -	- - - -	- - - - -	8	1.7	4.6	2.8	2	7	9	- - - - -	35	0	.230	.069
	1968	12	0.0	0.3	0.0	11	0	1	0	12	1.7	5.2	2.7	9	2	17	9	46	0	.217	.064
SOUTH DAKOTA																					
Sioux Falls	1967	2	0.0	0.3	- - - - -	- - -	- - - -	- - - -	- - - -	2	2.5	2.6	- - - - -	3	11	31	- - - - -	10	0	0	- - - - -
	1968	11	0.0	0.4	0.1	4	0	0	- - - - -	12	1.0	17.6	6.0	7	19	78	46	38	0	.380	.076
Custer	1967	- - -	- - - -	- - - -	- - - - -	- - -	- - - -	- - - -	- - - - -	- - -	- - - -	- - - -	- - - - -	- - -	- - - -	- - - -	- - - - -	- - -	- - - -	- - - -	- - - - -
	1968	7	0.0	0.1	0.0	8	0	1	0	7	0.3	4.1	2.0	6	1	10	6	26	0	.219	.053
Milbank	1967	- - -	- - - -	- - - -	- - - - -	- - -	- - - -	- - - -	- - - - -	- - -	- - - -	- - - -	- - - - -	- - -	- - - -	- - - -	- - - - -	- - -	- - - -	- - - -	- - - - -
	1968	8	0.0	0.1	0.0	8	0	2	0	5	0.7	3.7	- - - - -	8	4	56	24	33	0	.391	.046
TENNESSEE																					
Volunteer Arsenal (107)	1967	11	0.0	2.0	0.4	- - -	- - - -	- - - -	- - - - -	9	7.8	17.1	13.7	12	5	46	27	48	0	.272	.082
	1968	12	0.0	0.4	0.2	12	0	2	1	10	5.1	17.7	10.1	12	5	59	23	52	0	.255	.058
Volunteer Arsenal (108)	1967	11	0.0	0.4	0.2	- - -	- - - -	- - - -	- - - - -	11	2.5	6.7	4.3	12	1	21	8	49	0	.446	.140
	1968	12	0.0	0.4	0.1	12	0	3	1	12	2.7	5.7	4.1	12	1	16	8	52	0	.378	.094
Volunteer Arsenal (109)	1967	11	0.0	0.3	0.1	- - -	- - - -	- - - -	- - - - -	10	1.5	10.5	3.5	12	0	9	3	49	0	.212	.072
	1968	12	0.0	0.3	0.1	11	0	2	1	12	1.2	10.2	3.9	12	1	17	5	51	0	.257	.056

Table B–1 (continued). DATA SUMMARY

State/city	Year	Zinc				Annual steel				Quarterly steel				Fabric No. 1				Fabric No. 2			
		Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean
TENNESSEE (continued)																					
Volunteer Arsenal (110)	1967	1	....	....	1.0	1	....	....	27	2	17	26	22	4	21.2	23.4	21.9	4	0.8	1.2	1.0
	1968	1	....	....	4.1	1	....	....	25	4	11	26	21	4	21.6	25.5	23.3	..	....	....	....
Chattanooga (140)	1967	..	....	....	....	..	....	....	....	2	25	52	38	2	17.0	18.3	17.6	2	2.5	3.4	3.0
	1968	1	....	....	3.4	1	....	....	19	4	12	33	24	4	16.6	21.3	19.3	..	....	....	....
Memphis	1967	..	....	....	....	..	....	....	....	2	5	13	9	2	16.2	17.3	16.8	2	3.0	4.0	3.5
	1968	1	....	....	0.7	1	....	....	10	4	2	18	8	4	18.5	20.4	19.4	..	....	....	....
Bristol	1967	..	....	....	....	..	....	....	....	2	26	26	26	2	15.7	18.4	17.0	2	2.6	9.9	5.2
	1968	1	....	....	1.2	1	....	....	29	4	21	48	28	3	18.5	23.0	21.2	..	....	....	....
TEXAS																					
El Paso	1967	..	....	....	....	..	....	....	....	3	1	6	3	4	10.7	15.2	12.8	4	1.3	5.2	3.4
	1968	1	....	....	0.4	..	....	....	....	4	1	10	4	4	13.7	17.8	15.9	..	....	....	....
Del Rio	1967	1	....	....	0.4	1	....	....	2	3	4	6	5	2	10.8	15.9	13.4	2	1.3	1.5	1.4
	1968	1	....	....	0.4	1	....	....	4	4	1	5	3	4	12.7	19.7	16.5	..	....	....	....
Eagle Pass	1967	1	....	....	0.4	1	....	....	6	3	2	8	4	2	12.0	18.5	15.2	2	1.3	5.6	3.4
	1968	1	....	....	0.7	1	....	....	5	3	4	6	5	3	19.4	20.4	20.0	..	....	....	....
Laredo	1967	1	....	....	0.7	1	....	....	8	3	3	5	4	2	12.1	15.8	13.9	2	1.5	1.7	1.6
	1968	1	....	....	0.9	1	....	....	7	3	2	14	6	2	16.5	18.7	17.6	..	....	....	....
McAllen	1967	1	....	....	3.4	1	....	....	28	2	29	64	47	2	17.6	19.2	18.4	2	3.1	3.3	3.2
	1968	..	....	....	....	..	....	....	....	3	21	26	23	4	18.2	23.1	21.4	..	....	....	....
Brownsville	1967	..	....	....	....	..	....	....	....	1	88	88	....	..	....	....	....	..	....	....	....
	1968	..	....	....	....	..	....	....	....	1	40	40	....	2	18.5	24.3	21.4	..	....	....	....
Austin	1967	1	....	....	0.6	1	....	....	12	3	3	11	8	3	8.8	15.4	12.9	3	0.0	1.0	1.0
	1968	1	....	....	0.9	1	....	....	7	4	4	6	6	4	16.1	19.0	18.0	..	....	....	....
Beaumont	1967	1	....	....	1.2	1	....	....	42	3	55	83	72	3	17.0	19.5	18.5	3	1.0	1.2	1.1
	1968	1	....	....	1.7	1	....	....	47	4	49	81	66	4	21.0	24.3	22.4	..	....	....	....
Port Arthur	1967	1	....	....	1.8	1	....	....	44	3	44	76	56	3	16.1	19.5	17.8	3	0.6	1.1	0.9
	1968	1	....	....	1.2	1	....	....	36	4	42	84	58	2	21.3	22.2	21.8	..	....	....	....
Orange	1967	1	....	....	1.3	1	....	....	29	3	25	36	31	3	16.1	19.1	17.2	3	0.7	1.5	1.1
	1968	1	....	....	1.2	1	....	....	23	4	20	26	24	4	17.5	22.6	20.0	..	....	....	....
Brownwood	1967	1	....	....	0.6	1	....	....	3	3	2	4	3	3	11.6	15.4	13.2	3	1.5	2.4	1.9
	1968	1	....	....	0.9	1	....	....	3	4	1	2	2	3	13.6	21.4	17.9	..	....	....	....
Wichita Falls	1967	1	....	....	0.6	1	....	....	5	3	1	3	3	2	14.8	15.0	14.9	3	3.0	4.2	3.5
	1968	1	....	....	0.1	1	....	....	4	4	2	5	3	4	14.9	19.1	17.5	..	....	....	....

Table B–1 (continued). DATA SUMMARY

State/city	Year	Fabric No. 3				Fabric No. 4				Fabric No. 5				Fabric No. 6				Fabric No. 7			
		Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Mcx.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean
TENNESSEE (continued)																					
Volunteer Arsenal (110)	1967	4	19.7	37.5	25.1	4	11.0	27.5	20.8	..	....	....	.....	..	....	....	.....	..	....	....	.....
	1968	4	22.9	39.7	32.6	..	....	....	.....	3	9.9	13.6	11.2	4	4.2	6.0	5.0	4	1.9	6.5	4.7
Chattanooga (140)	1967	2	15.9	21.4	18.6	1	22.9	22.9	.....	..	....	....	.....	..	....	....	.....	..	....	....	.....
	1968	4	22.7	32.1	27.0	..	....	....	.....	4	7.3	14.5	10.6	3	8.4	11.0	9.3	4	3.5	23.7	10.4
Memphis	1967	2	23.3	24.9	24.1	1	23.8	23.8	.....	..	....	....	.....	..	....	....	.....	..	....	....	.....
	1968	4	23.0	25.6	24.6	..	....	....	.....	3	8.6	13.2	11.2	4	6.9	12.5	10.2	4	5.6	9.5	7.8
Bristol	1967	2	15.8	19.9	17.8	1	22.5	22.5	.....	..	....	....	.....	..	....	....	.....	..	....	....	.....
	1968	3	23.4	26.3	25.2	..	....	....	.....	3	6.8	14.3	10.5	3	8.6	18.2	12.8	3	6.0	15.5	10.5
TEXAS/																					
El Paso	1967	4	14.3	18.9	17.5	4	10.1	19.8	14.2	..	....	....	.....	..	....	....	.....	..	....	....	.....
	1968	4	17.9	22.1	20.2	..	....	....	.....	4	6.9	11.9	9.6	4	7.2	12.4	9.3	4	5.1	11.4	8.0
Del Rio	1967	2	10.3	14.2	12.2	1	23.1	23.1	.....	..	....	....	.....	..	....	....	.....	..	....	....	.....
	1968	4	11.9	17.4	15.6	..	....	....	.....	4	9.7	13.2	11.8	4	2.4	4.3	3.4	4	2.4	14.8	6.6
Eagle Pass	1967	2	14.2	15.3	14.8	1	20.7	20.7	.....	..	....	....	.....	..	....	....	.....	..	....	....	.....
	1968	2	16.9	20.4	18.6	..	....	....	.....	3	12.9	15.7	14.3	2	8.8	12.3	10.6	2	2.9	10.6	6.8
Laredo	1967	2	11.7	17.6	14.6	..	....	....	.....	..	....	....	.....	..	....	....	.....	..	....	....	.....
	1968	2	17.7	17.8	17.8	..	....	....	.....	2	9.5	11.7	10.6	2	6.6	7.4	7.0	2	10.3	15.1	12.7
McAllen	1967	2	15.1	24.3	19.7	1	25.6	25.6	.....	..	....	....	.....	..	....	....	.....	..	....	....	.....
	1968	2	19.4	23.7	21.6	..	....	....	.....	3	11.0	12.8	12.0	1	12.7	12.7	.....	1	14.1	14.1	.....
Brownsville	1967	..	....	....	.....	..	....	....	.....	..	....	....	.....	..	....	....	.....	..	....	....	.....
	1968	1	18.3	18.3	.....	..	....	....	.....	1	14.5	14.5	.....	2	5.8	9.8	7.8	2	4.0	5.4	4.7
Austin	1967	3	12.2	19.1	15.3	3	20.2	25.4	23.3	..	....	....	.....	..	....	....	.....	..	....	....	.....
	1968	3	18.9	22.9	21.1	..	....	....	.....	3	12.2	13.4	13.0	4	5.9	7.6	6.6	4	2.4	11.6	6.6
Beaumont	1967	3	15.3	24.5	19.7	3	23.5	25.8	24.3	..	....	....	.....	..	....	....	.....	..	....	....	.....
	1968	4	22.3	28.5	25.5	..	....	....	.....	4	10.1	12.5	11.4	4	3.6	6.0	4.8	4	2.1	8.4	4.7
Port Arthur	1967	3	16.6	28.1	21.4	3	26.7	31.8	28.7	..	....	....	.....	..	....	....	.....	..	....	....	.....
	1968	2	21.2	27.3	24.2	..	....	....	.....	2	13.6	14.2	13.9	2	5.3	7.3	6.3	2	8.2	8.7	8.4
Orange	1967	3	14.5	22.1	17.8	2	24.2	26.0	25.1	..	....	....	.....	..	....	....	.....	..	....	....	.....
	1968	3	24.1	27.8	26.1	..	....	....	.....	3	11.2	13.2	12.5	4	4.2	7.6	5.8	4	5.4	11.2	7.6
Brownwood	1967	3	10.3	18.1	13.8	2	21.8	23.0	22.4	..	....	....	.....	..	....	....	.....	..	....	....	.....
	1968	3	17.4	21.4	19.9	..	....	....	.....	3	11.6	13.2	12.6	3	6.9	12.6	8.9	3	2.9	9.6	5.4
Wichita Falls	1967	3	10.5	30.4	19.0	3	17.5	25.0	22.1	..	....	....	.....	..	....	....	.....	..	....	....	.....
	1968	4	16.1	22.0	18.6	..	....	....	.....	4	9.8	14.9	12.3	4	4.9	8.6	6.7	4	4.0	9.1	7.0

Table B–1 (continued). DATA SUMMARY

State/city	Year	Fabric No. 8				Fabric No. 9				Quarterly nylon				Monthly nylon				Silver tarnishing			
		Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean
TENNESSEE (continued)																					
Volunteer Arsenal	1967	..	....	....	.....	..	....	....	.....	3	4	17	9.7	10	1	19	5.3	11	50	80	69
(110)	1968	4	3.6	23.2	14.9	4	17.1	32.1	24.6	4	6	40	20.8	12	0	25	5.5	12	35	86	59
Chattanooga	1967	..	....	....	.....	..	....	....	.....	1	0	0	.....	7	0	2	0.3	7	43	74	54
(140)	1968	4	5.8	8.4	7.3	4	15.2	26.0	20.4	4	0	1	0.5	12	0	0	0	12	52	84	68
Memphis	1967	..	....	....	.....	..	....	....	.....	2	0	5	2.5	6	0	3	0.7	6	34	65	51
	1968	4	4.5	8.7	6.6	4	20.7	30.1	24.2	4	0	0	0	12	0	0	0	12	27	81	52
Bristol	1967	..	....	....	.....	..	....	....	.....	2	0	0	0	6	0	0	0	6	19	54	40
	1968	3	4.3	11.2	7.8	3	22.3	29.9	25.8	4	0	0	0	12	0	1	0.2	12	21	55	43
TEXAS																					
El Paso	1967	..	....	....	.....	..	....	....	.....	3	0	2	1.3	11	0	1	0.2	11	15	87	49
	1968	4	3.8	16.1	8.0	4	10.7	19.5	14.1	4	0	1	0.2	10	0	4	0.9	9	36	89	64
Del Rio	1967	..	....	....	.....	..	....	....	.....	3	0	0	0	8	0	0	0	6	26	59	35
	1968	4	4.6	8.8	6.1	4	17.2	20.2	18.8	4	0	0	0	12	0	1	0.1	12	20	78	38
Eagle Pass	1967	..	....	....	.....	..	....	....	.....	3	0	0	0	7	0	0	0	7	51	90	70
	1968	2	7.7	7.8	7.8	3	18.3	30.6	24.3	4	0	0	0	9	0	5	0.6	9	58	90	75
Laredo	1967	..	....	....	.....	..	....	....	.....	3	0	0	0	9	0	0	0	9	39	82	60
	1968	2	3.6	7.5	5.6	3	19.0	27.1	24.1	3	0	0	0	11	0	1	0.2	10	45	90	70
McAllen	1967	..	....	....	.....	..	....	....	.....	4	0	0	0	7	0	0	0	8	68	98	82
	1968	4	7.1	10.8	9.1	1	35.6	35.6	.....	3	0	0	0	12	0	0	0	12	56	90	78
Brownsville	1967	..	....	....	.....	..	....	....	.....	1	0	0	.....	4	0	0	.....	...	....	....	.....
	1968	2	6.4	10.7	8.6	2	20.8	37.7	29.2	2	0	0	0	7	0	0	0	4	36	69	.....
Austin	1967	..	....	....	.....	..	....	....	.....	2	0	0	0	6	0	0	0	9	55	85	67
	1968	4	4.9	9.1	7.2	4	20.4	29.8	25.1	4	0	0	0	12	0	1	0.2	12	51	92	68
Beaumont	1967	..	....	....	.....	..	....	....	.....	3	1	5	2.3	9	0	0	0	9	69	90	81
	1968	4	5.8	13.5	8.4	4	23.3	31.3	27.8	4	0	0	0	12	0	0	0	12	57	83	76
Port Arthur	1967	..	....	....	.....	..	....	....	.....	3	0	2	0.7	9	0	0	0	9	56	92	81
	1968	2	6.0	13.9	10.0	2	20.4	26.3	23.4	4	0	0	0	12	0	0	0	12	63	90	77
Orange	1967	..	....	....	.....	..	....	....	.....	3	0	0	0	9	0	0	0	9	55	89	74
	1968	3	9.4	12.4	11.3	4	19.6	35.7	28.6	4	0	0	0	12	0	0	0	12	58	90	75
Brownwood	1967	..	....	....	.....	..	....	....	.....	2	0	0	0	9	0	0	0	9	24	61	32
	1968	3	6.0	7.2	6.6	3	16.9	25.0	19.9	4	0	0	0	12	0	0	0	11	25	60	39
Wichita Falls	1967	..	....	....	.....	..	....	....	.....	3	0	0	0	9	0	0	0	9	25	68	41
	1968	4	6.1	10.5	8.6	4	18.5	31.7	24.6	4	0	0	0	11	0	0	0	12	20	66	36

Table B–1 (continued). DATA SUMMARY

State/city	Year	Lead peroxide candle				Lead plates				Dustfall				Sticky paper				Rubber cracking			
		Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean
TENNESSEE																					
Volunteer Arsenal (110)	1967	11	0.0	0.2	0.1	---	-----	-----	-----	11	2.0	10.8	4.8	12	1	19	7	49	0	.335	.098
	1968	12	0.0	0.2	0.1	11	0	2	1	12	2.4	11.1	4.9	12	1	15	5	50	0	.207	.063
Chattanooga (140)	1967	7	0.2	0.9	0.4	---	-----	-----	-----	7	5.0	21.3	9.9	7	9	42	25	31	0	.262	.082
	1968	12	0.0	1.0	0.4	11	0	7	3	12	4.1	11.2	6.2	11	4	49	25	52	0	.237	.085
Memphis	1967	6	0.0	0.3	0.2	---	-----	-----	-----	5	3.2	44.5	-----	6	12	57	28	21	0	.239	-----
	1968	12	0.0	0.4	0.2	9	0	1	1	11	5.0	11.1	8.5	12	2	60	37	52	0	.343	.080
Bristol	1967	6	0.0	0.8	0.4	---	-----	-----	-----	6	2.3	4.2	3.4	6	3	29	11	25	0	.355	-----
	1968	12	0.0	1.3	0.5	10	0	8	3	12	1.7	4.2	3.0	11	2	44	21	47	0	.358	.106
TEXAS																					
El Paso	1967	11	0.2	2.0	0.9	---	-----	-----	-----	10	1.3	4.1	2.8	11	43	71	51	56	0	.428	.164
	1968	7	0.6	1.5	0.9	9	2	10	6	10	1.9	9.2	5.2	6	27	89	61	35	0	.348	.149
Del Rio	1967	9	0.0	0.1	0.0	---	-----	-----	-----	7	1.2	56.8	11.8	8	12	46	28	30	0	.532	.139
	1968	12	0.0	0.4	0.1	10	0	17	0	11	1.2	15.3	3.3	12	13	47	29	52	0	.323	.082
Eagle Pass	1967	7	0.0	0.1	0.0	---	-----	-----	-----	6	2.8	5.8	3.8	7	23	56	38	20	0	.381	-----
	1968	10	0.0	0.2	0.0	6	0	1	0	10	3.8	19.1	8.2	5	22	68	-----	23	0	.403	-----
Laredo	1967	9	0.0	0.1	0.0	---	-----	-----	-----	8	2.1	7.7	4.9	10	26	59	44	37	0	.612	.107
	1968	11	0.0	0.1	0.0	8	0	1	0	12	1.4	13.9	7.7	10	41	79	57	48	0	.287	.080
McAllen	1967	8	0.0	0.2	0.1	---	-----	-----	-----	8	1.1	5.8	3.6	8	40	72	54	31	0	.350	.130
	1968	10	0.0	0.2	0.1	11	0	2	0	11	1.8	6.4	3.9	12	23	78	57	50	0	.352	.137
Brownsville	1967	4	0.0	0.1	-----	---	-----	-----	-----	1	4.8	4.8	-----	---	-----	-----	-----	15	0	.129	-----
	1968	5	0.0	0.2	-----	5	0	1	-----	5	6.8	21.6	-----	5	33	87	-----	25	0	.419	-----
Austin	1967	9	0.0	0.1	0.0	---	-----	-----	-----	9	1.3	3.7	2.1	10	2	35	12	34	0	.469	.109
	1968	12	0.0	0.2	0.0	12	0	1	0	11	1.1	11.0	3.3	11	3	19	10	52	0	.501	.098
Beaumont	1967	9	0.0	0.5	0.2	---	-----	-----	-----	9	2.1	9.0	3.9	8	1	14	6	35	0	.267	.087
	1968	11	0.0	0.7	0.2	12	0	4	1	12	2.5	5.3	2.8	6	1	30	6	31	0	.214	.048
Port Arthur	1967	9	0.0	0.7	0.3	---	-----	-----	-----	9	3.3	11.2	6.5	10	10	46	21	35	0	.539	.145
	1968	12	0.1	0.6	0.3	10	0	10	3	12	1.1	9.5	4.1	10	7	40	24	45	0	.547	.137
Orange	1967	9	0.0	0.2	0.1	---	-----	-----	-----	9	2.0	8.2	3.7	9	5	28	11	34	0	.446	.116
	1968	12	0.0	0.3	0.1	12	0	2	0	12	0.6	35.9	5.8	11	1	34	15	46	0	.262	.101
Brownwood	1967	8	0.0	0.1	0.0	---	-----	-----	-----	9	3.2	7.9	5.5	9	10	47	21	34	0	.323	.110
	1968	12	0.0	0.2	0.0	12	0	1	0	12	2.3	11.4	5.7	10	13	54	28	49	0	.462	.108
Wichita Falls	1967	8	0.0	0.1	0.0	---	-----	-----	-----	9	1.1	6.9	2.7	9	10	66	34	39	0	.489	.180
	1968	12	0.0	0.2	0.0	11	0	1	0	12	0.6	4.1	2.2	12	5	67	28	51	0	.462	.111

Table B–1 (continued). DATA SUMMARY

State/city	Year	Zinc				Annual steel				Quarterly steel				Fabric No. 1				Fabric No. 2			
		Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean
TEXAS (continued)																					
Sherman	1967	..	....	....	.....	..	....	....	.....	3	4	7	5	3	14.2	18.2	16.0	3	1.5	1.8	1.6
	1968	1	....	....	0.8	1	....	....	4	4	3	4	3	4	16.6	21.5	19.5	..	....	....	.....
Texarkana	1967	1	....	....	0.5	1	....	....	14	3	4	10	7	3	16.4	18.2	17.3	3	1.8	3.6	2.6
	1968	1	....	....	0.7	1	....	....	9	4	2	9	4	3	12.1	20.6	17.7	..	....	....	.....
Marshall	1967	..	....	....	.....	..	....	....	.....	1	44	44	.....	1	14.5	14.5	.....	1	0.9	0.9	.....
	1968	..	....	....	.....	1	....	....	6	2	4	14	9	..	....	....	.....	..	....	....	.....
UTAH																					
Bull Frog	1967	..	....	....	.....	..	....	....	.....	..	....	....	.....	..	....	....	.....	..	....	....	.....
	1968	..	....	....	.....	..	....	....	.....	2	0	1	0	1	8.7	8.7	.....	..	....	....	.....
VERMONT																					
Shoreman	1967	..	....	....	.....	..	....	....	.....	1	24	24	.....	1	8.0	8.0	.....	1	1.3	1.3	.....
	1968	1	....	....	3.8	1	....	....	30	4	23	36	31	4	16.4	21.7	18.8	..	....	....	.....
White River Junction	1967	..	....	....	.....	..	....	....	.....	1	45	45	.....	1	15.0	15.0	.....	1	1.0	1.0	.....
	1968	1	....	....	4.7	1	....	....	38	4	30	53	42	4	13.8	19.8	17.6	..	....	....	.....
Burlington	1967	..	....	....	.....	..	....	....	.....	1	47	47	.....	1	15.6	15.6	.....	1	2.6	2.6	.....
	1968	1	....	....	2.0	1	....	....	28	4	20	46	35	3	17.1	17.9	17.4	..	....	....	.....
VIRGINIA																					
Alexandria	1967	1	....	....	2.0	1	....	....	34	4	36	56	46	4	12.0	18.6	15.4	4	2.5	4.7	3.8
	1968	1	....	....	5.4	..	....	....	.....	3	31	50	40	4	18.4	22.2	20.1	..	....	....	.....
Leesburg	1967	1	....	....	4.1	1	....	....	37	3	28	44	37	3	14.4	16.9	15.8	3	1.3	1.4	1.4
	1968	1	....	....	1.1	1	....	....	33	4	29	41	36	4	15.0	19.2	17.6	..	....	....	.....
Danville	1967	..	....	....	.....	..	....	....	.....	1	29	29	.....	1	17.4	17.4	.....	1	1.5	1.5	.....
	1968	1	....	....	1.6	1	....	....	26	4	17	30	22	4	16.0	19.4	17.8	..	....	....	.....
Bristol	1967	..	....	....	.....	..	....	....	.....	1	41	41	.....	1	22.7	22.7	.....	..	....	....	.....
	1968	1	....	....	1.2	1	....	....	31	4	17	48	36	4	20.3	22.0	21.3	..	....	....	.....
Bluefield	1967	..	....	....	.....	..	....	....	.....	1	28	28	.....	1	16.2	16.2	.....	1	1.8	1.8	.....
	1968	1	....	....	1.5	1	....	....	29	4	20	37	27	4	15.1	20.1	18.5	..	....	....	.....
Luray	1967	..	....	....	.....	..	....	....	.....	1	14	14	.....	1	16.1	16.1	.....	1	1.4	1.4	.....
	1968	1	....	....	3.4	1	....	....	22	4	9	21	16	4	12.4	19.2	16.3	..	....	....	.....
Blacksburg	1967	..	....	....	.....	..	....	....	.....	1	22	22	.....	1	15.5	15.5	.....	1	1.9	1.9	.....
	1968	1	....	....	3.9	1	....	....	24	3	25	29	27	4	17.0	18.3	17.8	..	....	....	.....
Martinsville	1967	..	....	....	.....	..	....	....	.....	..	....	....	.....	1	16.6	16.6	.....	1	1.4	1.4	.....
	1968	1	....	....	0.8	1	....	....	20	3	6	27	14	3	17.7	21.9	20.1	..	....	....	.....

Table B–1 (continued). DATA SUMMARY

State/city	Year	Fabric No. 3				Fabric No. 4				Fabric No. 5				Fabric No. 6				Fabric No. 7			
		Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean
TEXAS (continued)																					
Sherman	1967	3	15.9	20.9	17.9	3	19.9	27.1	23.9	..	....	....	.....	..	....	....	.....	..	....	....	.....
	1968	4	18.4	23.1	21.2	..	....	....	.....	4	10.4	15.1	12.8	4	8.1	11.8	9.3	4	3.9	12.7	7.8
Texarkana	1967	3	14.3	19.9	17.1	2	20.8	22.1	21.4	..	....	....	.....	..	....	....	.....	..	....	....	.....
	1968	3	19.2	23.7	21.8	..	....	....	.....	3	6.7	11.6	9.4	3	6.4	9.0	7.9	3	5.7	10.3	7.8
Marshall	1967	1	16.6	16.6	.....	1	16.4	16.4	.....	..	....	....	.....	..	....	....	.....	..	....	....	.....
	1968	..	....	....	.....	..	....	....	.....	..	....	....	.....	..	....	....	.....	..	....	....	.....
UTAH																					
Bull Frog	1967	..	....	....	.....	..	....	....	.....	..	....	....	.....	..	....	....	.....	..	....	....	.....
	1968	1	14.4	14.4	.....	..	....	....	.....	1	13.1	13.1	.....	1	3.3	3.3	.....	1	7.0	7.0	.....
VERMONT																					
Shoreman	1967	1	17.1	17.1	.....	1	25.2	25.2	.....	..	....	....	.....	..	....	....	.....	..	....	....	.....
	1968	4	16.5	22.2	20.2	..	....	....	.....	4	12.2	15.8	13.9	4	6.2	8.6	7.6	4	4.2	11.4	8.6
White River Junction	1967	1	26.9	26.9	.....	1	20.7	20.7	.....	..	....	....	.....	..	....	....	.....	..	....	....	.....
	1968	4	21.0	35.2	27.4	..	....	....	.....	3	7.6	11.4	9.1	4	5.1	10.0	7.9	4	3.3	8.4	6.0
Burlington	1967	1	23.0	23.0	.....	1	22.8	22.8	.....	..	....	....	.....	..	....	....	.....	..	....	....	.....
	1968	4	19.7	30.4	26.2	..	....	....	.....	4	9.5	15.6	12.3	3	5.4	9.4	7.8	4	3.9	11.8	8.2
VIRGINIA																					
Alexandria	1967	4	26.2	36.0	31.3	3	10.7	26.8	19.0	..	....	....	.....	..	....	....	.....	..	....	....	.....
	1968	4	33.4	46.5	39.9	..	....	....	.....	4	7.2	16.1	11.6	[illegible]	8.7	13.2	11.4	4	4.9	12.9	9.0
Leesburg	1967	3	12.8	20.3	16.1	2	23.1	31.3	27.2	..	....	....	.....	..	....	....	.....	..	....	....	.....
	1968	4	20.4	22.3	21.2	..	....	....	.....	4	8.0	18.3	13.0	4	5.5	7.4	6.8	4	3.4	7.2	5.9
Danville	1967	1	16.2	16.2	.....	..	....	....	.....	..	....	....	.....	..	....	....	.....	..	....	....	.....
	1968	4	22.7	28.0	26.0	..	....	....	.....	4	11.2	16.5	14.0	4	3.8	6.8	5.6	4	3.6	10.7	8.7
Bristol	1967	1	14.4	14.4	.....	..	....	....	.....	..	....	....	.....	..	....	....	.....	..	....	....	.....
	1968	4	20.2	23.8	22.0	..	....	....	.....	4	8.1	14.2	11.1	4	6.3	15.3	10.7	4	4.3	16.1	9.8
Bluefield	1967	1	18.3	18.3	.....	1	16.9	16.9	.....	..	....	....	.....	..	....	....	.....	..	....	....	.....
	1968	3	21.0	27.2	24.2	..	....	....	.....	2	8.6	12.7	10.6	4	8.2	17.6	13.4	4	3.9	12.4	8.6
Luray	1967	1	37.8	37.8	.....	1	15.9	15.9	.....	..	....	....	.....	..	....	....	.....	..	....	....	.....
	1968	3	12.2	15.3	13.3	..	....	....	.....	4	9.2	12.9	11.6	4	3.0	4.4	4.0	4	2.7	6.6	4.4
Blacksburg	1967	1	20.3	20.3	.....	1	16.2	16.2	.....	..	....	....	.....	..	....	....	.....	..	....	....	.....
	1968	3	20.9	26.1	24.1	..	....	....	.....	3	10.7	17.7	14.2	4	6.1	11.7	11.4	4	4.2	9.5	7.4
Martinsville	1967	1	22.6	22.6	.....	1	14.5	14.5	.....	..	....	....	.....	..	....	....	.....	..	....	....	.....
	1968	3	20.3	27.2	23.7	..	....	....	.....	3	12.2	15.7	14.4	3	5.4	10.1	8.0	4	3.3	8.8	5.7

Table B–1 (continued). DATA SUMMARY

State/city	Year	Fabric No. 8				Fabric No. 9				Quarterly nylon				Monthly nylon				Silver tarnishing			
		Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean
TEXAS (continued)																					
Sherman	1967	..	....	....	.....	..	....	....	.....	3	0	2	0.7	9	0	0	0	8	18	65	38
	1968	4	3.3	9.7	7.0	4	14.9	28.8	22.0	4	0	0	0	11	0	0	0	11	16	49	34
Texarkana	1967	..	....	....	.....	..	....	....	.....	3	0	0	0	9	0	0	0	9	55	94	77
	1968	3	2.9	8.5	5.6	3	13.8	38.0	24.3	4	0	2	0.5	12	0	0	0	12	40	83	63
Marshall	1967	..	....	....	.....	..	....	....	.....	..	....	....	.....	2	0	0	.....	2	55	70	.....
	1968	..	....	....	.....	..	....	....	.....	3	0	5	1.7	9	0	6	0.9	9	27	70	52
UTAH																					
Bull Frog	1967	..	....	....	.....	..	....	....	.....	..	....	....	.....	3	0	0	.....	...	....	....	.....
	1968	1	6.7	6.7	.....	1	14.5	14.5	.....	1	0	0	.....	5	0	0	.....	5	0	10	.....
VERMONT																					
Shoreman	1967	..	....	....	.....	..	....	....	.....	1	0	0	.....	3	0	0	.....	3	42	82	.....
	1968	4	9.4	12.6	10.5	4	8.5	26.8	16.6	4	0	0	0	12	0	0	0	12	44	80	60
White River Junction	1967	..	....	....	.....	..	....	....	.....	1	9	9	.....	3	0	2	.....	3	34	51	.....
	1968	4	5.4	15.2	8.9	3	13.9	23.9	19.5	4	0	4	2.5	12	0	5	2.0	12	17	72	39
Burlington	1967	..	....	....	.....	..	....	....	.....	1	47	47	.....	3	6	11	.....	3	38	59	.....
	1968	4	7.6	12.4	9.8	4	13.6	23.8	18.0	4	0	30	8.7	12	0	10	2.3	12	24	75	42
VIRGINIA																					
Alexandria	1967	..	....	....	.....	..	....	....	.....	4	0	2	0.8	11	0	1	0.1	9	40	84	63
	1968	4	6.7	9.3	8.4	4	13.1	29.9	23.5	4	0	3	1.2	12	0	3	0.4	11	39	73	56
Leesburg	1967	..	....	....	.....	..	....	....	.....	3	0	2	1.0	11	0	4	0.5	10	22	58	43
	1968	4	5.2	14.9	9.2	4	11.2	26.6	20.0	4	0	25	8.2	12	0	10	2.1	12	22	58	42
Danville	1967	..	....	....	.....	..	....	....	.....	1	0	0	.....	4	0	0	.....	4	20	44	.....
	1968	4	7.1	13.0	9.3	4	11.0	27.7	20.6	4	0	0	0	12	0	0	0	12	22	69	41
Bristol	1967	..	....	....	.....	..	....	....	.....	1	0	0	.....	4	0	0	.....	4	17	60	.....
	1968	4	5.2	8.9	6.6	4	17.6	23.9	20.8	4	0	0	0	12	0	0	0	12	33	60	46
Bluefield	1967	..	....	....	.....	..	....	....	.....	1	0	0	.....	4	0	1	.....	4	30	59	.....
	1968	3	6.2	10.9	8.1	3	15.1	26.6	21.4	4	0	0	0	12	0	0	0	12	26	71	45
Luray	1967	..	....	....	.....	..	....	....	.....	1	0	0	.....	4	0	4	.....	3	16	48	.....
	1968	4	3.6	9.9	6.0	4	5.3	26.0	15.9	4	0	0	0	12	0	1	0.1	12	15	69	30
Blacksburg	1967	..	....	....	.....	..	....	....	.....	1	0	0	0	3	0	0	.....	3	48	55	.....
	1968	4	7.9	9.6	8.9	4	14.9	25.1	19.4	4	0	0	0	12	0	0	0	11	23	76	39
Martinsville	1967	..	....	....	.....	..	....	....	.....	1	0	0	.....	1	0	0	.....	1	65	65	.....
	1968	3	9.5	10.1	9.8	3	19.0	23.1	21.1	4	0	0	0	12	0	0	0	11	31	84	59

Table B–1 (continued). DATA SUMMARY

State/city	Year	Lead peroxide candle				Lead plates				Dustfall				Sticky paper				Rubber cracking			
		Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean
TEXAS (continued)																					
Sherman	1967	9	0.0	0.2	0.0	---	----	----	-----	9	0.6	4.7	2.9	9	9	39	22	35	0	.444	.156
	1968	12	0.0	0.2	0.0	12	0	2	0	12	1.4	0.1	3.8	11	6	62	36	48	0	.444	.116
Texarkana	1967	8	0.0	0.1	0.0	---	----	----	-----	9	2.1	5.4	3.4	9	5	31	14	38	0	.383	.124
	1968	11	0.0	0.2	0.1	12	0	2	1	12	2.1	6.7	3.4	12	2	48	20	51	0	.323	.080
Marshall	1967	2	0.1	0.2	-----	---	----	----	-----	---	----	----	-----	3	4	50	-----	8	0	0	-----
	1968	8	0.0	0.2	0.1	6	0	1	0	4	0.9	2.1	-----	7	5	37	21	33	0	.353	.114
UTAH																					
Bull Frog	1967	---	----	----	-----	0- -	----	----	-----	---	----	----	-----	---	----	----	-----	---	----	----	-----
	1968	5	0.0	1.0	-----	5	0	2	-----	5	0.9	3.3	-----	4	18	70	-----	16	0	.255	-----
VERMONT																					
Shoreman	1967	2	0.4	0.4	-----	---	----	----	-----	3	0.2	1.1	-----	4	1	5	-----	11	0	.284	-----
	1968	12	0.0	1.1	0.2	10	0	3	2	12	0.3	3.8	1.7	12	1	25	8	51	0	.572	.104
White River Junction	1967	3	0.3	0.6	-----	---	----	----	-----	3	2.6	3.6	-----	3	7	8	-----	12	0	.078	-----
	1968	12	0.0	1.1	0.3	12	0	6	2	12	1.1	5.4	3.6	12	2	41	15	50	0	.298	.058
Burlington	1967	3	1.0	1.4	-----	---	----	----	-----	3	0.9	3.4	-----	3	16	24	-----	13	0	0	-----
	1968	12	0.0	1.7	0.5	12	0	11	4	12	0.4	3.0	1.7	11	1	39	14	52	0	.424	.105
VIRGINIA																					
Alexandria	1967	10	0.4	6.4	1.5	---	----	----	-----	9	2.7	5.4	4.3	11	6	69	30	36	0	.438	.134
	1968	12	0.0	2.8	0.9	12	2	19	7	12	2.0	7.5	4.7	10	13	65	30	42	0	.308	.100
Leesburg	1967	11	0.0	1.0	0.3	---	----	----	-----	10	1.4	4.2	2.6	11	1	47	18	44	0	.418	.138
	1968	12	0.0	1.0	0.3	12	0	11	3	12	1.1	4.5	2.2	11	1	28	15	46	0	.393	.093
Danville	1967	4	0.0	0.4	-----	---	----	----	-----	5	1.0	2.8	-----	5	1	7	-----	20	0	.260	-----
	1968	12	0.0	0.6	0.2	12	0	3	1	12	1.4	3.3	2.2	11	1	13	7	50	0	.371	.091
Bristol	1967	4	0.1	1.2	-----	---	----	----	-----	5	1.7	4.5	-----	5	5	36	-----	18	0	.360	-----
	1968	11	0.0	1.2	0.4	12	0	8	3	12	2.3	5.8	3.5	11	18	61	34	51	0	.333	.096
Bluefield	1967	4	0.2	0.5	-----	---	----	----	-----	5	2.8	3.6	-----	5	4	25	-----	19	0	.466	-----
	1968	11	0.0	0.8	0.3	12	0	6	2	12	2.6	8.9	4.8	11	6	53	24	49	0	.396	.064
Luray	1967	3	0.0	0.2	-----	---	----	----	-----	4	0.6	1.9	-----	4	1	2	-----	16	0	.139	-----
	1968	12	0.0	0.3	0.1	12	0	1	0	12	0.3	3.0	1.5	12	1	11	3	51	0	.315	.078
Blacksburg	1967	3	0.2	0.5	-----	---	----	----	-----	3	2.6	2.9	-----	3	5	19	-----	9	0	0	-----
	1968	12	0.0	0.6	0.2	11	0	4	1	12	1.0	4.8	2.7	12	1	45	16	52	0	.451	.143
Martinsville	1967	1	0.4	0.4	-----	---	----	----	-----	1	3.2	3.2	-----	---	----	----	-----	5	0	0	-----
	1968	11	0.0	0.6	0.2	9	0	3	1	11	1.1	7.5	3.1	9	9	57	28	39	0	.388	.106

Table B—1 (continued). DATA SUMMARY

State/city	Year	Zinc				Annual steel				Quarterly steel				Fabric No. 1				Fabric No. 2			
		Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean
WASHINGTON																					
Spokane	1967	..	....	....	.....	1	....	....	16	4	1	33	16	4	11.6	15.6	13.1	4	1.7	4.2	2.7
	1968	1	....	....	1.4	1	....	....	17	4	2	32	16	4	16.5	18.9	17.7	..	....	....	.....
Pullman	1967	1	....	....	0.4	1	....	....	4	4	0	5	2	4	9.4	19.7	14.5	4	0.8	3.9	2.3
	1968	1	....	....	0.4	1	....	....	2	4	1	5	3	4	17.6	20.2	18.9	..	....	....	.....
Clarkston	1967	1	....	....	0.8	1	....	....	10	3	1	21	9	2	11.5	15.2	13.4	2	2.0	3.6	2.8
	1968	1	....	....	0.5	1	....	....	8	..	....	....	.....	1	13.8	13.8	.....	..	....	....	.....
Bellingham	1967	1	....	....	1.2	1	....	....	38	3	44	63	54	4	11.8	15.7	13.7	4	0.6	1.5	1.1
	1968	1	....	....	0.9	1	....	....	27	4	36	52	43	4	14.5	20.6	17.4	..	....	....	.....
Seattle	1967	1	....	....	1.6	1	....	....	34	4	16	89	46	4	12.4	17.2	14.4	3	2.2	3.8	3.2
	1968	1	....	....	2.1	1	....	....	28	4	35	60	50	4	15.3	20.7	19.2	..	....	....	.....
Longview	1967	1	....	....	1.6	1	....	....	34	4	32	87	49	4	13.4	16.4	15.0	4	1.9	2.8	2.3
	1968	1	....	....	3.0	1	....	....	39	4	41	83	59	3	19.3	19.4	19.4	..	....	....	.....
Vancouver	1967	1	....	....	1.6	1	....	....	38	4	8	103	59	3	12.7	14.4	13.7	3	1.7	3.5	2.9
	1968	1	....	....	1.1	1	....	....	36	3	29	74	46	4	18.0	19.3	18.6	..	....	....	.....
WASHINGTON, D.C.																					
Washington, D.C. (7)	1967	1	....	....	1.9	1	....	....	29	4	38	66	50	4	13.2	17.0	14.9	4	2.4	4.2	3.2
	1968	1	....	....	1.6	1	....	....	25	4	37	50	44	4	15.1	20.3	18.1	..	....	....	.....
Washington, D.C. (113)	1967	1	....	....	1.8	1	....	....	28	3	48	57	54	3	11.6	17.2	14.8	3	2.6	5.1	2.6
	1968	1	....	....	1.5	1	....	....	28	4	37	54	46	4	15.4	22.4	19.6	..	....	....	.....
WEST VIRGINIA																					
Wheeling	1967	1	....	....	2.9	1	....	....	55	4	80	114	96	4	11.7	15.7	14.2	4	1.7	7.7	3.4
	1968	1	....	....	3.4	1	....	....	50	4	72	100	85	3	14.6	21.1	17.8	..	....	....	.....
Weirton	1967	1	....	....	2.2	1	....	....	56	4	63	132	93	4	12.1	15.7	14.3	4	0.8	4.8	3.0
	1968	1	....	....	5.4	1	....	....	67	4	96	121	104	4	15.3	21.8	18.1	..	....	....	.....
Parkersburg	1967	1	....	....	1.3	1	....	....	37	4	33	63	46	4	12.7	18.5	15.4	4	0.7	2.1	1.4
	1968	1	....	....	1.5	1	....	....	41	4	50	64	55	4	16.5	20.7	18.3	..	....	....	.....
Huntington	1967	..	....	....	.....	1	....	....	39	4	34	74	55	3	15.1	18.5	16.9	3	2.9	3.7	3.3
	1968	1	....	....	1.4	1	....	....	32	4	42	58	48	4	19.8	27.3	22.5	..	....	....	.....
Piedmont	1967	..	....	....	.....	..	....	....	.....	2	60	62	61	2	14.9	15.5	15.2	1	1.3	1.3	.....
	1968	1	....	....	2.5	..	....	....	.....	3	52	128	78	4	15.2	21.4	18.6	..	....	....	.....
Keyser	1967	..	....	....	.....	..	....	....	.....	2	63	72	67	2	16.2	16.3	16.3	2	1.2	1.3	1.2
	1968	1	....	....	4.0	1	....	....	42	4	58	75	63	4	14.9	19.9	17.7	..	....	....	.....
Bluefield	1967	..	....	....	.....	..	....	....	.....	1	32	32	.....	1	17.2	17.2	.....	1	3.0	3.0	.....
	1968	1	....	....	4.7	1	....	....	30	3	30	38	33	3	13.3	26.0	19.8	..	....	....	.....

Table B—1 (continued). DATA SUMMARY

State/city	Year	Fabric No. 3				Fabric No. 4				Fabric No. 5				Fabric No. 6				Fabric No. 7			
		Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean
WASHINGTON																					
Spokane	1967	4	13.2	16.3	14.6	4	9.7	15.7	12.4	..	....	....	.....	..	....	....	.....	..	....	....	.....
	1968	4	17.5	20.3	19.2	..	....	....	.....	4	6.1	9.0	7.9	3	8.5	13.0	10.3	4	7.0	15.8	10.2
Pullman	1967	4	9.4	14.8	12.4	3	14.5	15.5	15.0	..	....	....	.....	..	....	....	.....	..	....	....	.....
	1968	4	14.9	21.0	17.0	..	....	....	.....	4	9.0	11.2	10.0	4	6.0	7.2	6.4	4	4.9	8.1	6.4
Clarkston	1967	3	13.2	15.8	14.2	2	8.4	14.2	11.3	..	....	....	.....	..	....	....	.....	..	....	....	.....
	1968	1	16.1	16.1	.....	..	....	....	.....	1	7.3	7.3	.....	1	7.0	7.0	.....	1	5.8	5.8	.....
Bellingham	1967	4	13.1	17.7	15.1	4	13.5	19.0	15.7	..	....	....	.....	..	....	....	.....	..	....	....	.....
	1968	4	18.6	24.1	20.1	..	....	....	.....	4	8.3	11.1	8.8	4	5.1	10.5	6.9	4	3.2	10.4	7.0
Seattle	1967	4	16.4	23.7	20.4	3	10.8	15.6	12.9	..	....	....	.....	..	....	....	.....	..	....	....	.....
	1968	4	23.6	26.9	25.2	..	....	....	.....	4	5.4	7.4	5.9	4	8.3	9.1	8.7	4	4.3	13.4	8.6
Longview	1967	4	8.6	18.1	13.9	3	13.6	19.5	16.0	..	....	....	.....	..	....	....	.....	..	....	....	.....
	1968	3	15.8	19.2	17.5	..	....	....	.....	3	6.8	9.1	7.7	3	5.9	12.5	8.7	4	3.5	5.6	5.0
Vancouver	1967	4	15.2	19.4	17.5	3	10.9	14.1	12.7	..	....	....	.....	..	....	....	.....	..	....	....	.....
	1968	4	17.9	23.0	20.0	..	....	....	.....	4	4.0	9.9	7.2	4	8.0	10.4	8.7	4	3.4	9.6	6.8
WASHINGTON, D.C.																					
Washington, D.C. (7)	1967	4	30.0	45.9	37.5	4	9.3	21.7	14.5	..	....	....	.....	..	....	....	.....	..	....	....	.....
	1968	4	36.9	53.5	44.0	..	....	....	.....	4	6.0	15.3	9.8	4	9.2	13.2	11.2	3	5.9	13.8	10.0
Washington, D.C. (113)	1967	3	26.5	33.5	29.2	3	13.3	24.8	19.0	..	....	....	.....	..	....	....	.....	..	....	....	.....
	1968	4	37.3	53.6	43.6	..	....	....	.....	4	7.5	18.4	12.2	4	7.9	12.4	10.2	4	3.8	9.5	6.8
WEST VIRGINIA																					
Wheeling	1967	4	26.0	39.0	32.7	3	11.3	23.1	17.5	..	....	....	.....	..	....	....	.....	..	....	....	.....
	1968	3	34.4	47.2	39.6	..	....	....	.....	3	6.2	14.1	9.5	3	7.6	16.6	10.7	4	7.7	14.1	11.7
Weirton	1967	3	24.1	29.8	27.3	4	9.5	19.9	14.3	..	....	....	.....	..	....	....	.....	..	....	....	.....
	1968	4	29.2	44.4	34.2	..	....	....	.....	4	5.0	12.5	8.8	3	9.5	12.9	11.1	3	6.5	12.7	9.6
Parkersburg	1967	4	14.6	26.1	19.8	4	11.9	23.6	16.8	..	....	....	.....	..	....	....	.....	..	....	....	.....
	1968	4	26.3	28.6	27.2	..	....	....	.....	4	7.1	13.3	10.2	4	5.7	6.7	6.0	4	2.9	21.9	11.0
Huntington	1967	4	12.8	24.3	18.9	4	10.9	23.2	17.0	..	....	....	.....	..	....	....	.....	..	....	....	.....
	1968	4	24.3	29.4	27.0	..	....	....	.....	3	6.4	11.3	8.0	4	9.6	14.7	11.6	4	5.1	13.7	9.3
Piedmont	1967	2	13.5	14.6	14.0	2	12.7	18.0	15.4	..	....	....	.....	..	....	....	.....	..	....	....	.....
	1968	4	19.1	24.3	22.4	..	....	....	.....	4	7.6	13.9	10.5	4	6.8	9.3	8.1	4	3.2	14.4	8.8
Keyser	1967	2	15.8	16.9	16.4	2	15.6	19.9	17.8	..	....	....	.....	..	....	....	.....	..	....	....	.....
	1968	4	23.4	26.4	24.3	..	....	....	.....	4	6.0	14.5	10.7	4	6.6	11.4	8.2	4	2.6	9.0	6.2
Bluefield	1967	1	17.2	17.2	.....	1	15.3	15.3	.....	..	....	....	.....	..	....	....	.....	..	....	....	.....
	1968	3	23.5	31.7	26.6	..	....	....	.....	2	13.1	14.2	18.6	4	10.2	12.2	11.1	3	10.7	17.4	13.3

Table B–1 (continued). DATA SUMMARY

State/city	Year	Fabric No. 8				Fabric No. 9				Quarterly nylon				Monthly nylon				Silver tarnishing			
		Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean
WASHINGTON																					
Spokane	1967	..	.....	.....	.....	..	.....	.....	.....	4	0	0	0	12	0	0	0	12	11	28	18
	1968	4	4.1	9.9	6.5	4	13.3	19.1	16.8	3	0	0	0	12	0	0	0	12	16	38	24
Pullman	1967	..	.....	.....	.....	..	.....	.....	.....	4	0	0	0	12	0	0	0	12	15	74	27
	1968	4	2.9	8.0	6.1	3	7.8	12.9	10.9	4	0	1	0.5	12	0	0	0	12	15	34	22
Clarkston	1967	..	.....	.....	.....	..	.....	.....	.....	4	0	0	0	12	0	1	0.1	12	42	90	77
	1968	1	2.7	2.7	.....	1	12.7	12.7	.....	1	0	0	.....	6	0	0	0	6	66	85	82
Bellingham	1967	..	.....	.....	.....	..	.....	.....	.....	4	0	0	0	12	0	0	0	12	19	93	55
	1968	4	2.8	11.1	7.4	4	13.1	19.6	16.5	4	0	0	0	12	0	2	0.3	12	25	96	53
Seattle	1967	..	.....	.....	.....	..	.....	.....	.....	4	1	40	12.0	12	0	20	4.0	12	24	65	42
	1968	4	4.1	11.1	6.4	4	13.6	20.7	17.0	4	0	12	5.8	12	0	7	1.8	12	21	75	48
Longview	1967	..	.....	.....	.....	..	.....	.....	.....	4	0	1	0.2	11	0	0	0	12	51	86	71
	1968	3	2.6	8.3	5.4	3	17.7	19.9	19.0	4	0	0	0	12	0	0	0	12	58	98	78
Vancouver	1967	..	.....	.....	.....	..	.....	.....	.....	4	0	0	0	12	0	0	0	12	40	91	66
	1968	3	5.3	7.8	6.4	4	10.4	21.2	18.1	4	0	0	0	12	0	0	0	12	40	83	63
WASHINGTON, D.C.																					
Washington, D.C. (7)	1967	..	.....	.....	.....	..	.....	.....	.....	4	0	3	1.0	12	0	1	0.2	12	50	86	68
	1968	4	6.0	8.6	7.5	4	14.3	30.8	22.0	4	0	5	2.0	12	0	1	0.1	12	40	81	66
Washington, D.C. (113)	1967	..	.....	.....	.....	..	.....	.....	.....	3	0	0	0	11	0	1	0.1	9	56	81	69
	1968	4	6.2	10.1	7.8	4	10.9	30.5	21.7	4	0	4	1.0	12	0	0	0	11	55	83	68
WEST VIRGINIA																					
Wheeling	1967	..	.....	.....	.....	..	.....	.....	.....	4	0	2	0.5	12	0	1	0.1	12	51	82	70
	1968	3	4.4	12.3	7.7	3	13.3	31.7	20.5	4	0	1	0.2	12	0	0	0	12	44	80	69
Weirton	1967	..	.....	.....	.....	..	.....	.....	.....	4	0	2	0.5	11	0	1	0.1	11	78	91	84
	1968	3	2.5	13.5	8.3	4	15.5	26.4	21.6	4	0	2	0.5	11	0	0	0	12	78	89	83
Parkersburg	1967	..	.....	.....	.....	..	.....	.....	.....	4	0	0	0	12	0	0	0	12	47	92	72
	1968	4	2.7	10.0	6.6	4	12.0	27.5	20.1	4	0	6	1.5	12	0	3	0.3	12	55	86	74
Huntington	1967	..	.....	.....	.....	..	.....	.....	.....	4	0	2	0.8	12	0	0	0	12	57	84	71
	1968	4	5.8	11.4	8.2	4	18.0	31.6	24.4	4	0	1	0.8	11	0	0	0	12	48	81	69
Piedmont	1967	..	.....	.....	.....	..	.....	.....	.....	2	0	1	0.5	5	0	1	.....	4	86	99	.....
	1968	4	2.2	9.1	5.1	4	8.9	25.9	17.8	3	0	0	0	10	0	1	0.1	11	71	100	89
Keyser	1967	..	.....	.....	.....	..	.....	.....	.....	2	0	1	0.5	4	0	0	.....	4	91	100	.....
	1968	4	2.2	8.7	5.4	4	11.0	27.6	17.4	4	0	0	0	12	0	0	0	12	79	96	90
Bluefield	1967	..	.....	.....	.....	..	.....	.....	.....	1	2	2	.....	4	0	0	.....	4	30	59	.....
	1968	3	8.2	9.3	8.8	4	13.3	29.8	22.1	2	0	0	0	9	0	0	0	9	23	72	47

Table B–1 (continued). DATA SUMMARY

State/city	Year	Lead peroxide candle				Lead plates				Dustfall				Sticky paper				Rubber cracking			
		Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean
WASHINGTON																					
Spokane	1967	12	0.0	0.6	0.3	...	...	...	...	12	1.7	11.7	4.5	12	7	38	24	41	0	.310	.071
	1968	12	0.0	0.6	0.2	12	0	4	2	12	2.9	8.8	4.8	12	16	57	30	52	0	.356	.062
Pullman	1967	12	0.0	0.2	0.0	...	...	...	...	12	3.5	101.1	13.1	12	6	53	22	52	0	.353	.085
	1968	12	0.0	0.1	0.0	11	0	1	0	12	2.9	8.1	5.0	12	9	46	24	52	0	.446	.071
Clarkston	1967	11	0.0	0.3	0.1	...	...	...	...	12	2.2	42.4	7.0	12	3	37	20	51	0	.244	.062
	1968	6	0.0	0.4	0.1	4	0	2	...	7	2.0	6.0	4.0	6	10	29	17	26	0	.087	.003
Bellingham	1967	12	0.2	0.7	0.4	...	...	...	...	12	1.6	10.3	3.8	12	7	34	18	51	0	.297	.053
	1968	12	0.0	0.9	0.2	11	0	3	2	12	1.6	4.8	3.1	12	5	41	22	52	6	.247	.033
Seattle	1967	12	0.4	1.4	0.9	...	...	...	...	11	0.5	3.0	2.1	12	10	39	22	52	0	.194	.031
	1968	12	0.0	1.4	0.9	11	3	10	6	11	2.0	3.9	2.8	12	14	38	24	52	0	.154	.009
Longview	1967	12	0.0	0.4	0.2	...	...	...	...	12	3.1	6.8	4.5	12	6	31	18	51	0	.340	.058
	1968	12	0.0	0.5	0.1	11	0	3	2	11	3.4	6.8	5.0	12	5	47	20	50	0	.187	.032
Vancouver	1967	12	0.1	1.0	0.6	...	...	...	...	12	1.9	5.6	2.7	12	7	37	18	52	0	.403	.062
	1968	12	0.1	1.2	0.5	11	1	8	4	12	0.9	3.3	2.4	12	5	41	25	51	0	.171	.029
WASHINGTON, D.C.																					
Washington, D.C. (7)	1967	12	0.7	2.4	1.4	...	...	...	...	12	3.9	9.0	6.9	12	17	65	42	52	0	.272	.066
	1968	11	0.3	3.0	1.0	12	3	18	8	12	3.2	16.9	8.2	12	13	72	51	52	0	.227	.057
Washington, D.C. (113)	1967	10	0.6	1.8	1.0	...	...	...	...	10	1.9	5.3	3.3	10	6	42	27	44	0	.328	.110
	1968	12	0.4	2.5	1.0	12	3	17	7	12	1.8	5.0	3.4	12	4	55	30	52	0	.315	.079
WEST VIRGINIA																					
Wheeling	1967	12	0.8	2.5	1.5	...	...	...	...	12	4.8	15.2	8.0	12	10	44	22	50	0	.312	.064
	1968	12	0.8	3.4	1.3	12	5	26	10	12	2.8	8.9	6.5	11	15	48	28	49	0	.169	.050
Weirton	1967	12	1.0	2.3	1.5	...	...	...	...	11	6.0	29.0	18.3	12	24	66	47	49	0	.275	.086
	1968	11	0.5	1.6	1.1	10	6	17	9	12	7.3	33.3	16.5	11	36	84	56	50	0	.169	.054
Parkersburg	1967	12	0.3	0.7	0.5	...	...	...	...	11	2.2	12.3	6.7	12	3	30	12	50	0	.307	.082
	1968	12	0.2	1.9	0.6	12	2	8	4	12	4.6	9.2	6.9	11	1	42	14	48	0	.202	.052
Huntington	1967	12	0.2	0.8	0.6	...	...	...	...	12	3.1	10.8	6.1	12	7	42	23	51	0	.315	.110
	1968	11	0.2	0.7	0.5	8	2	5	3	12	2.6	9.7	6.0	12	21	70	42	51	0	.207	.038
Piedmont	1967	5	0.5	1.8	...	...	...	...	...	5	0.8	3.9	...	5	11	45	...	19	0	.234	...
	1968	11	0.3	2.9	1.0	10	2	16	6	11	2.9	9.5	4.9	10	26	76	47	47	0	.272	.051
Keyser	1967	5	0.5	1.4	...	...	...	...	...	5	0.6	2.7	...	5	3	32	...	20	0	.312	...
	1968	12	0.4	2.0	1.0	10	2	13	7	12	1.6	6.7	4.1	11	1	55	22	50	0	.398	.103
Bluefield	1967	4	0.2	0.8	...	...	...	...	...	5	2.8	4.3	...	5	2	35	...	20	0	.471	...
	1968	9	0.0	1.2	0.4	8	0	8	3	9	2.3	8.0	5.1	4	10	53	...	19	0	.297	...

Table B–1 (continued). DATA SUMMARY

State/city	Year	Zinc				Annual steel				Quarterly steel				Fabric No. 1				Fabric No. 2			
		Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean
WISCONSIN																					
Superior	1967	1	....	....	1.3	1	....	....	24	4	25	47	34	4	15.0	18.2	16.8	4	3.1	4.8	3.7
	1968	1	....	....	1.7	1	....	....	30	4	36	45	40	3	19.5	25.2	21.7	..	....	....	....
Kenosha	1967	..	....	....	....	1	....	....	35	4	40	65	49	4	15.2	19.0	17.4	4	1.5	5.5	4.0
	1968	1	....	....	4.6	1	....	....	32	4	40	53	46	4	19.1	23.2	21.2	..	....	....	....
La Crosse	1967	..	....	....	....	..	....	....	....	..	....	....	....	..	....	....	....	..	....	....	....
	1968	1	....	....	0.9	1	....	....	26	4	20	27	24	3	17.2	19.6	18.4	..	....	....	....
WYOMING																					
Cheyenne	1967	..	....	....	....	..	....	....	....	..	....	....	....	..	....	....	....	..	....	....	....
	1968	..	....	....	....	..	....	....	....	2	0	3	2	2	13.7	18.9	16.3	..	....	....	....
Frannie	1967	..	....	....	....	..	....	....	....	..	....	....	....	..	....	....	....	..	....	....	....
	1968	..	....	....	....	..	....	....	....	2	2	6	4	..	....	....	....	..	....	....	....
PUERTO RICO																					
Guaynabo	1967	..	....	....	....	..	....	....	....	..	....	....	....	..	....	....	....	..	....	....	....
	1968	..	....	....	....	..	....	....	....	2	131	133	132	1	22.0	22.0	....	..	....	....	....
Salinas	1967	..	....	....	....	..	....	....	....	..	....	....	....	..	....	....	....	..	....	....	....
	1968	..	....	....	....	..	....	....	....	2	22	23	22	1	13.5	13.5	....	..	....	....	....
El Yungue	1967	..	....	....	....	..	....	....	....	..	....	....	....	..	....	....	....	..	....	....	....
	1968	..	....	....	....	..	....	....	....	2	38	40	39	1	21.5	21.5	....	..	....	....	....
CANADA																					
Ojibway, Ontario	1967	..	....	....	....	..	....	....	....	..	....	....	....	..	....	....	....	..	....	....	....
	1968	1	....	....	2.3	..	....	....	....	2	89	194	142	2	21.5	23.7	22.6	..	....	....	....
Sarnia, Ontario (168)	1967	..	....	....	....	..	....	....	....	..	....	....	....	..	....	....	....	..	....	....	....
	1968	1	....	....	1.3	1	....	....	49	3	71	82	76	2	21.5	23.7	22.6	..	....	....	....
Sarnia, Ontario (169)	1967	..	....	....	....	..	....	....	....	..	....	....	....	..	....	....	....	..	....	....	....
	1968	1	....	....	1.4	1	....	....	47	3	65	86	76	3	18.2	23.6	21.6	..	....	....	....
Windsor, Ontario	1967	..	....	....	....	..	....	....	....	1	37	37	....	..	....	....	....	..	....	....	....
	1968	1	....	....	4.1	..	....	....	....	2	1	60	30	2	21.3	24.5	22.9				

Table B–1 (continued). DATA SUMMARY

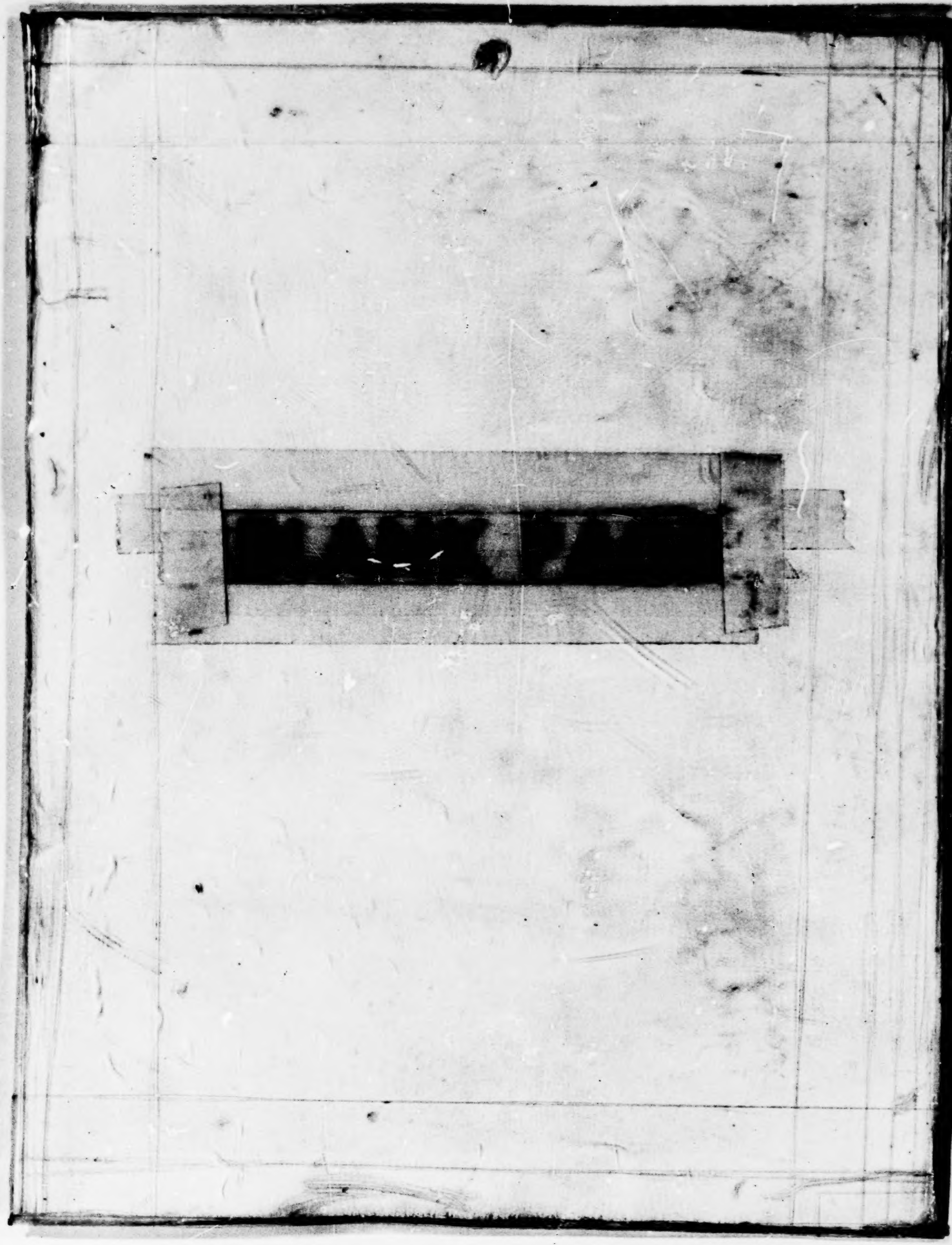
State/city	Year	Fabric No. 3				Fabric No. 4				Fabric No. 5				Fabric No. 6				Fabric No. 7			
		Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean
WISCONSIN																					
Superior	1967	4	15.8	20.7	17.9	4	11.8	21.6	16.6	..	.....	.....	.....	..	.....	.....	.....	..	.....	.....	.....
	1968	3	16.2	22.5	19.5	..	.....	.....	.....	3	7.6	10.2	8.9	3	4.7	14.5	8.9	4	5.0	17.7	11.7
Kenosha	1967	4	15.6	22.7	18.8	3	13.8	30.1	21.8	..	.....	.....	.....	..	.....	.....	.....	..	.....	.....	.....
	1968	4	21.9	27.2	24.7	..	.....	.....	.....	4	5.8	16.0	10.5	4	5.9	12.3	10.0	4	6.3	20.8	12.0
La Crosse	1967	..	.....	.....	.....	..	.....	.....	.....	..	.....	.....	.....	..	.....	.....	.....	..	.....	.....	.....
	1968	3	17.4	19.5	18.8	..	.....	.....	.....	3	8.7	14.3	12.0	3	7.6	10.0	9.2	4	3.3	13.3	8.0
WYOMING																					
Cheyenne	1967	..	.....	.....	.....	..	.....	.....	.....	..	.....	.....	.....	..	.....	.....	.....	..	.....	.....	.....
	1968	2	12.7	14.8	13.8	..	.....	.....	.....	2	8.1	10.5	9.3	2	4.9	6.3	5.6	2	4.1	7.1	5.6
Frannie	1967	..	.....	.....	.....	..	.....	.....	.....	..	.....	.....	.....	..	.....	.....	.....	..	.....	.....	.....
	1968	..	.....	.....	.....	..	.....	.....	.....	..	.....	.....	.....	..	.....	.....	.....	..	.....	.....	.....
PUERTO RICO																					
Guaynabo	1967	..	.....	.....	.....	..	.....	.....	.....	..	.....	.....	.....	..	.....	.....	.....	..	.....	.....	.....
	1968	1	25.9	25.9	.....	..	.....	.....	.....	2	10.6	14.5	12.6	1	7.3	7.3	.....	1	6.9	6.9	.....
Salinas	1967	..	.....	.....	.....	..	.....	.....	.....	..	.....	.....	.....	..	.....	.....	.....	..	.....	.....	.....
	1968	1	19.7	19.7	.....	..	.....	.....	.....	1	12.5	12.5	.....	1	9.4	9.4	.....	1	8.0	8.0	.....
El Yungue	1967	..	.....	.....	.....	..	.....	.....	.....	..	.....	.....	.....	..	.....	.....	.....	..	.....	.....	.....
	1968	1	29.4	29.4	.....	..	.....	.....	.....	1	12.1	12.1	.....	1	6.7	6.7	.....	1	4.9	4.9	.....
CANADA																					
Ojibway, Ontario	1967	..	.....	.....	.....	..	.....	.....	.....	..	.....	.....	.....	..	.....	.....	.....	..	.....	.....	.....
	1968	2	29.2	33.6	31.4	..	.....	.....	.....	3	5.7	14.5	9.7	2	13.7	25.5	19.6	3	12.9	23.6	17.6
Sarnia, Ontario (168)	1967	..	.....	.....	.....	..	.....	.....	.....	..	.....	.....	.....	..	.....	.....	.....	..	.....	.....	.....
	1968	3	23.9	25.6	24.7	..	.....	.....	.....	2	12.5	15.5	14.0	3	7.3	13.6	10.3	3	10.0	16.6	12.6
Sarnia, Ontario (169)	1967	..	.....	.....	.....	..	.....	.....	.....	..	.....	.....	.....	..	.....	.....	.....	..	.....	.....	.....
	1968	3	19.7	24.1	21.9	..	.....	.....	.....	3	7.6	14.5	11.8	4	4.6	10.2	7.6	3	2.8	9.3	5.1
Windsor, Ontario	1967	..	.....	.....	.....	..	.....	.....	.....	..	.....	.....	.....	..	.....	.....	.....	..	.....	.....	.....
	1968	2	27.4	28.9	28.2	..	.....	.....	.....	2	10.4	16.8	13.6	3	8.9	11.6	10.2	2	5.0	15.1	10.0

Table B–1 (continued). DATA SUMMARY

State/city	Year	Fabric No. 8				Fabric No. 9				Quarterly nylon				Monthly nylon				Silver tarnishing			
		Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean
WISCONSIN																					
Superior	1967	..	....	....	.....	..	....	....	.....	4	0	0	0	11	0	0	0	12	34	67	54
	1968	2	4.3	4.7	4.5	3	10.2	25.6	18.0	4	0	1	0.2	12	0	0	0	12	36	86	58
Kenosha	1967	..	....	....	.....	..	....	....	.....	4	0	0	0	12	0	2	0.2	12	24	74	51
	1968	4	4.0	12.3	9.0	4	14.6	24.4	20.4	4	0	0	0	12	0	0	0	12	35	57	46
La Crosse	1967	..	....	....	.....	..	....	....	.....	..	....	....	.....	...	....	....	.....	...	....	....	.....
	1968	3	5.5	8.4	8.0	3	12.1	26.5	19.7	4	0	1	0.2	11	0	2	0.3	10	10	30	20
WYOMING																					
Cheyenne	1967	..	....	....	.....	..	....	....	.....	..	....	....	.....	...	....	....	.....	...	....	....	.....
	1968	2	6.8	8.1	7.4	2	4.2	17.5	10.8	2	0	1	0.5	7	0	1	0.1	6	6	48	26
Frannie	1967	..	....	....	.....	..	....	....	.....	..	....	....	.....	...	....	....	.....	...	....	....	.....
	1968	..	....	....	.....	1	9.2	9.2	.....	2	0	0	0	6	0	0	0	6	78	89	82
PUERTO RICO																					
Guaynabo	1967	..	....	....	.....	..	....	....	.....	..	....	....	.....	...	....	....	.....	...	....	....	.....
	1968	1	5.2	5.2	.....	1	27.8	27.8	.....	2	9	18	13.5	5	0	8	.....	6	53	77	67
Salinas	1967	..	....	....	.....	..	....	....	.....	..	....	....	.....	...	....	....	.....	...	....	....	.....
	1968	1	8.1	8.1	.....	1	23.3	23.3	.....	2	0	0	0	6	0	0	0	6	30	55	40
El Yungue	1967	..	....	....	.....	..	....	....	.....	..	....	....	.....	...	....	....	.....	...	....	....	.....
	1968	1	16.0	16.0	.....	1	38.4	38.4	.....	2	0	0	0	6	0	0	0	6	1	21	11
CANADA																					
Ojibway, Ontario	1967	..	....	....	.....	..	....	....	.....	..	....	....	.....	...	....	....	.....	...	....	....	.....
	1968	1	10.0	10.0	.....	2	19.0	30.4	24.7	4	0	0	0	10	0	0	0	9	53	84	69
Sarnia, Ontario (168)	1967	..	....	....	.....	..	....	....	.....	..	....	....	.....	...	....	....	.....	...	....	....	.....
	1968	2	4.7	9.1	6.9	3	14.6	35.7	24.4	4	0	0	0	9	0	0	0	10	30	85	64
Sarnia, Ontario (169)	1967	..	....	....	.....	..	....	....	.....	..	....	....	.....	...	....	....	.....	...	....	....	.....
	1968	2	3.8	9.5	6.6	3	12.2	26.0	20.1	4	0	2	0.5	10	0	0	0	11	57	85	71
Windsor, Ontario	1967	..	....	....	.....	..	....	....	.....	..	....	....	.....	...	....	....	.....	...	....	....	.....
	1968	1	10.0	10.0	.....	3	17.5	30.2	24.4	3	0	5	1.7	9	0	0	0	10	34	73	50

Table B–1 (continued). DATA SUMMARY

State/city	Year	Lead peroxide candle				Lead plates				Dustfall				Sticky paper				Rubber cracking			
		Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean	Sample size	Min.	Max.	Mean
WISCONSIN																					
Superior	1967	11	0.1	1.0	0.5	...	....	....	....	10	1.7	6.1	3.9	11	8	46	24	44	0	.435	.101
	1968	12	0.0	1.4	0.4	11	2	11	4	12	2.2	8.9	5.2	9	15	72	33	52	0	.363	.049
Kenosha	1967	12	0.0	1.2	0.6	...	....	....	....	12	2.5	9.5	5.0	12	4	34	19	52	0	.504	.144
	1968	12	0.0	1.7	0.6	12	2	10	5	11	3.3	13.0	6.6	10	8	53	28	48	0	.392	.088
La Crosse	1967	...	....	....	....	...	....	....	....	...	....	....	....	...	....	....	....	...	....	....	....
	1968	10	0.0	0.5	0.2	10	0	5	2	11	1.5	8.6	4.1	11	6	62	25	48	0	.269	.063
WYOMING																					
Cheyenne	1967	...	....	....	....	...	....	....	....	...	....	....	....	...	....	....	....	...	....	....	....
	1968	6	0.0	0.1	0.0	7	0	2	1	7	0.5	30.0	6.0	6	22	31	28	25	0	.252	....
Frannie	1967	...	....	....	....	...	....	....	....	...	....	....	....	...	....	....	....	...	....	....	....
	1968	6	0.4	0.9	0.6	6	2	5	4	7	0.8	3.2	2.0	6	4	47	25	28	0	.264	.077
PUERTO RICO																					
Guaynabo	1967	...	....	....	....	...	....	....	....	...	....	....	....	...	....	....	....	...	....	....	....
	1968	6	0.3	0.9	0.7	6	0	5	4	6	16.7	39.8	23.2	6	18	41	31	23	0	.161	....
Salinas	1967	...	....	....	....	...	....	....	....	...	....	....	....	...	....	....	....	...	....	....	....
	1968	6	0.0	0.1	0.0	6	0	0	0	5	0.4	2.3	....	5	7	52	....	23	0	.187	....
El Yungue	1967	...	....	....	....	...	....	....	....	...	....	....	....	...	....	....	....	...	....	....	....
	1968	6	0.0	0.1	0.1	5	0	0	....	4	1.0	3.5	....	5	2	10	....	25	0	.255	....
CANADA																					
Ojibway, Ontario	1967	...	....	....	....	...	....	....	....	...	....	....	....	...	....	....	....	11	0	.244	....
	1968	9	1.0	1.9	1.5	9	9	17	12	9	2.9	7.1	4.9	7	35	76	55	35	0	.441	.143
Sarnia, Ontario (168)	1967	...	....	....	....	...	....	....	....	...	....	....	....	...	....	....	....	14	0	.252	....
	1968	9	0.7	1.8	1.2	9	6	17	9	10	3.5	7.7	5.9	10	3	69	36	42	0	.288	.060
Sarnia, Ontario (169)	1967	...	....	....	....	...	....	....	....	...	....	....	....	...	....	....	....	...	....	....	....
	1968	9	0.7	1.5	1.1	9	6	12	8	10	1.9	6.4	5.2	10	14	62	29	43	0	.295	.055
Windsor, Ontario	1967	...	....	....	....	...	....	....	....	...	....	....	....	...	....	....	....	...	....	....	....
	1968	9	0.4	1.1	0.7	8	3	7	5	8	1.3	4.5	2.8	8	6	62	25	36	0	.383	.126



APPENDIX C.

1968 QUARTILE RANKINGS OF COMPONENTS BY AREA AND STATION

Table C–1. COMPONENT RANKS, 1968

Area name	Station number	Particulates			SO_2					H_2S	Acid aerosol		NO_x	Oxidation potential	
		Dustfall	Sticky paper	Fabric No. 6	Lead Candle	Lead plate	Quarterly steel	Annual steel	Zinc	Silver plate	Quarterly nylon	Monthly nylon	Fabric No. 3	Rubber panel	Fabric No. 5
Albany, New York	22	2	–	–	4	5	4	2	1	2	4	2	1	5	–
	30	4	3	2	5	4	3	4	3	3	5	4	4	1	–
Anchorage, Alaska	246	2	–	3	1	1	1	–	–	1	2	2	3	–	1
Ann Arbor, Michigan	224	3	1	2	2	2	2	3	2	2	2	2	2	2	3
Augusta, Georgia	131	1	1	3	2	2	2	2	2	4	4	2	2	2	3
	133	1	1	2	1	1	2	2	2	2	2	2	2	2	3
Austin, Texas	120	2	1	1	1	1	1	1	1	3	2	2	4	3	4
Bastrop, Louisiana	216	5	2	2	2	2	3	–	4	4	2	2	2	3	3
	208	4	–	–	–	2	1	–	–	5	2	2	2	–	3
Beaumont, Texas	121	1	1	1	2	2	3	4	2	4	2	2	3	1	3
	122	2	2	1	2	3	3	3	2	4	2	2	3	5	5
	123	3	1	1	1	1	2	2	2	4	2	2	3	3	4
	124	2	1	1	1	2	2	3	2	3	4	2	2	3	3
Bellingham, Washington	77	2	2	2	2	2	3	2	1	2	2	2	2	1	1
Binghampton, New York	25	2	2	2	3	3	3	3	2	2	2	2	3	2	3
Blacksburg, Virginia	195	1	1	4	2	2	2	2	4	2	2	2	2	5	5
Block Island, Rhode Island	189	1	1	3	2	3	4	5	3	2	2	2	3	5	5
Bluefield, Virginia	159	3	–	4	3	3	2	3	4	2	2	2	3	–	4
	160	3	2	5	2	2	2	3	2	2	2	2	3	2	2
Bogalusa, Louisiana	214	3	–	1	3	2	5	–	–	5	2	2	2	–	4
Boston, Massachusetts	192	3	4	5	5	5	4	4	4	3	5	5	4	1	1
Boulder City, Nevada	89	1	3	1	1	1	1	1	1	1	2	2	1	5	5
Bridgeport, Connecticut	243	3	5	3	5	4	4	–	–	3	5	5	5	3	2
Broward County, Florida	135	1	3	2	1	2	3	1	3	2	4	2	1	4	1
Bristol, Tennessee	148	1	2	5	3	3	2	3	2	2	2	2	3	4	2
	158	2	3	4	3	3	2	3	2	2	2	2	2	3	3
Brownsville, Texas	119	–	–	2	–	–	–	–	–	–	2	2	–	–	–
Brownwood, Texas	125	3	2	3	1	1	1	1	1	2	2	2	1	4	4
Buffalo, New York	23	3	3	3	3	4	3	3	3	4	2	2	3	3	2
	24	4	5	5	5	5	5	5	5	5	4	2	4	1	1

Table C–1 (continued). COMPONENT RANKS, 1968

Area name	Station number	Particulates			SO_2					H_2S	Acid aerosol		NO_x	Oxidation potential	
		Dustfall	Sticky paper	Fabric No. 6	Lead Candle	Lead plate	Quarterly steel	Annual steel	Zinc	Silver plate	Quarterly nylon	Monthly nylon	Fabric No. 3	Rubber panel	Fabric No. 5
Buffalo, New York (continued)	[illegible]34	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	265	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	266	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	267	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Bullfrog, Utah	262	–	–	–	–	–	1	–	–	–	–	–	–	–	–
Burlington, Vermont	181	1	1	2	3	3	2	2	3	2	5	4	3	4	4
Cairo, Illinois	258	–	–	–	–	–	–	–	–	–	2	–	–	–	3
Calexico, California	93	3	4	4	1	1	1	1	1	4	2	2	2	5	–
Cannon Mountain, New Hampshire	175	1	–	2	2	2	–	–	–	1	2	2	1	2	4
Carville, Louisiana	219	1	1	1	1	1	2	2	1	3	4	4	1	3	5
Chapel Hill, North Carolina	237	1	1	1	1	1	2	2	2	1	4	2	2	4	5
	238	1	1	–	1	1	1	2	–	1	2	2	–	3	–
Charleston, Indiana	263	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Charlotte, North Carolina	31	3	3	4	2	3	2	2	1	3	2	2	3	4	2
	32	2	2	3	2	3	2	2	2	3	2	2	3	4	3
	33	2	1	3	2	2	2	2	2	3	4	2	3	3	4
Chattanooga, Tennessee	140	3	2	3	3	3	2	2	3	3	4	2	3	3	2
	141	4	1	1	2	2	2	2	3	2	2	2	2	2	4
Cheyenne, Wyoming	252	3	2	1	1	1	1	–	–	1	2	2	1	–	–
Chicago, Illinois	26	5	5	5	5	5	3	3	5	4	5	5	5	1	1
	52	5	5	5	5	5	5	5	5	5	4	4	4	3	1
	53	4	5	5	5	5	4	–	4	4	2	2	3	2	1
	54	2	3	5	4	4	–	–	–	3	2	2	4	2	1
	55	4	4	5	5	4	3	3	3	3	4	2	3	3	2
	136	4	5	5	5	5	4	3	4	5	2	2	5	1	–
	137	4	5	4	5	5	4	3	3	4	2	2	4	2	1
	138	2	3	3	4	4	5	–	–	3	2	4	3	2	2
	139	2	2	4	3	3	3	2	1	2	4	2	2	4	2
	149	5	5	4	4	5	3	–	–	4	4	4	3	1	1
Cincinnati, Ohio	6	3	4	5	3	3	2	2	3	3	4	2	4	1	1

Table C–1 (continued). COMPONENT RANKS, 1968

Area name	Station number	Particulates			SO$_2$					H$_2$S	Acid aerosol		NO$_X$	Oxidation potential	
		Dustfall	Sticky paper	Fabric No. 6	Lead Candle	Lead plate	Quarterly steel	Annual steel	Zinc	Silver plate	Quarterly nylon	Monthly nylon	Fabric No. 3	Rubber panel	Fabric No. 5
Cincinnati, Ohio (continued)	70	4	–	4	3	3	3	3	2	3	4	2	3	2	–
	154	3	3	3	3	3	3	3	2	2	4	2	4	3	1
	155	4	3	2	3	3	2	2	3	3	2	2	3	1	1
Clarkston, Washington	74	4	–	2	2	2	2	2	3	5	2	2	1	–	2
	75	4	–	1	1	1	1	1	4	4	2	2	1	–	1
	76	2	1	–	2	–	–	1	1	5	–	2	–	–	–
Clifton, Arizona	261	–	–	–	–	–	1	–	–	–	–	–	–	–	–
Columbus, Georgia	142	1	1	2	1	2	1	1	–	2	2	2	2	2	1
	143	1	2	1	1	1	1	1	2	2	2	2	2	3	3
Columbus, Ohio	37	2	2	3	3	3	3	3	2	2	2	2	3	1	1
Corvallis, Oregon	69	1	1	1	1	1	1	1	2	1	4	2	1	1	2
Custer, South Dakota	244	1	1	1	1	1	1	–	–	1	5	2	1	–	4
Davenport, Iowa	57	3	3	4	2	3	2	2	2	1	4	2	2	2	2
	58	4	4	3	3	3	2	2	2	1	2	2	1	1	3
	59	5	5	2	2	3	2	2	3	1	2	2	2	1	2
Del Rio, Texas	115	2	2	1	1	1	1	1	1	1	2	2	1	3	3
Denver, Colorado	27	5	5	3	2	2	1	1	1	1	2	2	3	2	1
Detroit, Michigan	34	5	5	5	4	5	4	4	4	4	4	2	4	1	2
	35	5	5	5	4	4	4	–	5	4	2	2	4	2	3
	162	3	4	3	3	4	3	4	–	3	2	2	3	4	3
	163	3	3	3	3	3	3	3	3	3	2	2	3	2	3
	165	3	5	5	4	5	5	–	3	3	2	2	3	5	2
	170	1	2	3	3	3	2	–	4	2	2	2	3	4	4
	196	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Douglas, Arizona	102	3	5	3	3	3	1	1	5	1	2	2	1	5	2
Dubuque, Iowa	227	4	4	3	3	3	2	2	2	1	2	2	1	3	2
	228	4	3	2	3	3	–	–	2	1	–	2	–	2	2
Dulce, New Mexico	100	1	2	1	1	1	1	–	–	1	2	2	1	5	2
Duluth, Minnesota	49	3	2	3	2	2	2	2	2	2	2	2	2	1	1
	50	3	3	3	3	3	3	3	2	3	2	2	1	1	1

Table C–1 (continued). COMPONENT RANKS, 1968

Area name	Station number	Particulates			SO₂					H₂S	Acid aerosol		NOₓ	Oxidation potential	
		Dustfall	Sticky paper	Fabric No. 6	Lead Candle	Lead plate	Quarterly steel	Annual steel	Zinc	Silver plate	Quarterly nylon	Monthly nylon	Fabric No. 3	Rubber panel	Fabric No. 5
Eagle Pass, Texas	116	4	–	4	1	1	1	1	1	4	2	2	1	–	5
Easton, Pennsylvania	14	3	2	4	4	3	4	4	3	3	4	4	3	2	2
	230	1	1	2	3	3	3	4	2	3	2	2	3	4	5
East Helena, Montana	254	4	3	4	5	–	2	–	–	1	4	4	1	–	2
El Paso, Texas	103	1	4	1	5	5	2	2	5	3	4	4	1	5	3
	104	2	3	1	2	1	1	1	1	1	2	2	1	3	2
	105	3	5	3	3	3	1	–	1	3	2	4	2	5	2
Evansville, Indiana	44	3	4	2	4	4	3	3	3	1	4	2	3	3	2
	161	3	3	2	4	4	3	4	3	3	2	2	3	3	4
Fairbanks, Alaska	247	–	2	3	1	1	1	–	–	1	2	2	2	–	1
Fall River, Massachusetts	188	2	1	2	3	3	3	4	2	2	2	2	3	4	5
	191	2	4	5	4	5	4	4	5	2	4	2	5	2	4
Fargo, North Dakota	198	2	4	4	2	2	2	2	1	1	2	2	2	1	1
	249	1	–	1	2	2	–	–	–	1	2	2	1	–	–
Farmington, New Mexico	98	1	4	2	1	1	1	1	1	1	2	2	1	5	3
	99	1	3	1	1	1	1	1	5	1	2	2	1	5	2
Fernandina Beach, Florida	134	2	2	1	2	2	5	–	5	5	4	2	2	5	5
	231	2	1	1	2	–	3	3	3	5	2	2	2	3	5
	232	2	2	1	2	2	4	–	–	5	2	2	2	3	5
Fort Smith, Arkansas	210	3	1	2	1	1	1	1	–	1	2	2	1	3	3
	211	1	1	1	1	1	1	1	1	1	4	2	1	5	5
Frankfort, Kentucky	106	2	1	1	2	2	3	3	2	2	2	2	2	3	4
Frannie, Wyoming	253	1	2	–	3	3	1	–	–	5	2	2	–	–	–
Gainesville, Florida	233	3	1	1	1	1	2	2	–	4	2	2	2	3	5
Grand Forks, North Dakota	197	4	2	2	2	2	2	2	1	1	2	2	1	1	2
	248	4	4	1	1	1	1	–	–	1	2	–	1	–	1
Hartford, Connecticut	184	4	4	4	4	5	3	4	3	2	5	5	5	1	1
Hennepin, Illinois	56	2	1	2	2	2	2	3	2	1	2	2	1	4	3
Hilo, Hawaii	242	1	1	1	1	1	1	–	–	1	2	2	1	1	2
Honolulu, Hawaii	241	1	3	2	2	2	3	2	1	1	4	2	2	3	2

Table C–1 (continued). COMPONENT RANKS, 1968

Area name	Station number	Particulates			SO_2					H_2S	Acid aerosol		NO_X	Oxidation potential	
		Dustfall	Sticky paper	Fabric No. 6	Lead Candle	Lead plate	Quarterly steel	Annual steel	Zinc	Silver plate	Quarterly nylon	Monthly nylon	Fabric No. 3	Rubber panel	Fabric No. 5
Huntington, West Virginia	65	3	4	4	3	3	3	3	2	3	4	2	3	1	1
	66	5	5	4	3	4	5	4	3	5	4	2	3	1	1
	67	3	2	3	3	3	3	4	–	4	2	2	2	3	1
International Falls, Minnesota	251	5	5	–	4	4	5	–	–	5	2	2	1	–	1
Jackson, Mississippi	269	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Joplin, Missouri	206	1	2	2	2	1	2	1	1	1	2	2	2	4	2
	207	2	1	1	1	1	1	1	4	1	2	2	1	3	4
Kansas City, Missouri	47	4	2	1	2	2	2	–	1	3	2	2	2	2	–
	48	3	3	2	3	3	2	2	4	2	4	2	2	2	2
	85	2	2	3	3	3	2	2	2	2	2	2	2	4	2
	86	2	3	1	2	3	2	2	1	1	2	2	2	4	3
	87	3	3	3	2	2	1	2	2	2	2	2	1	3	3
Kenosha, Wisconsin	51	3	2	3	3	3	3	3	4	2	2	2	3	3	2
Keyser, West Virginia	150	2	3	4	4	4	3	3	3	4	4	2	4	2	5
	151	4	3	2	3	3	4	5	2	5	4	2	2	2	3
	152	3	4	2	3	3	4	–	3	5	2	2	2	1	2
	153	2	2	2	3	3	3	4	4	5	2	2	3	4	3
Laredo, Texas	117	4	5	2	1	1	1	1	1	4	2	2	1	3	2
Lawrence, Massachusetts	173	1	–	2	2	2	3	3	2	1	4	2	3	–	3
	177	2	3	3	3	3	4	4	3	2	2	2	4	2	3
Lebanon, New Hampshire	171	2	2	2	3	3	3	–	3	1	2	4	2	1	3
	180	2	1	2	2	2	3	3	4	2	4	4	3	1	1
Leesburg, Virginia	114	1	1	1	2	3	2	3	2	2	5	4	2	3	4
Longview, Washington	80	3	1	3	2	2	3	3	3	4	2	2	1	1	1
	81	1	1	1	1	2	2	–	3	4	2	2	1	1	2
Los Angeles, California	239	1	2	3	2	2	2	2	–	3	2	2	5	5	5
	240	2	3	4	2	2	2	2	4	3	2	2	5	5	4
Louisville, Kentucky	39	4	4	4	4	4	4	3	3	3	4	2	3	2	2
	40	5	3	4	4	4	5	4	3	3	4	2	3	2	1
Luray, Virginia	172	1	1	1	2	1	2	2	3	1	2	2	1	3	3

Table C–1 (continued). COMPONENT RANKS, 1968

Area name	Station number	Particulates			SO_2					H_2S	Acid aerosol		NO_X	Oxidation potential	
		Dustfall	Sticky paper	Fabric No. 6	Lead Candle	Lead plate	Quarterly steel	Annual steel	Zinc	Silver plate	Quarterly nylon	Monthly nylon	Fabric No. 3	Rubber panel	Fabric No. 5
Madawaska, Maine	193	5	–	5	5	–	5	–	–	1	–	–	–	–	2
May's Landing, New Jersey	1	–	–	–	–	–	4	–	–	–	–	–	–	–	–
McAllen, Texas	118	2	5	–	1	1	2	–	–	4	2	2	2	5	3
Memphis, Tennessee	147	4	3	3	2	2	1	1	1	2	2	2	3	3	3
	209	3	2	2	1	2	1	1	4	2	2	2	2	3	3
Milbank, South Dakota	245	–	2	2	1	1	1	–	1	1	2	2	1	1	–
	250	3	–	–	1	–	2	–	–	1	2	2	–	–	–
Mobile, Alabama	146	4	2	2	2	2	3	3	1	4	4	2	2	2	4
Montauk Point, New York	144	2	1	2	3	3	5	–	–	2	2	2	4	5	5
Natchez, Mississippi	215	1	1	1	1	1	1	1	3	4	2	2	2	5	4
	235	3	–	–	1	1	1	1	3	3	2	2	–	–	–
Needles, California	90	1	2	1	1	1	1	1	1	2	2	2	1	5	4
	91	1	3	–	1	–	1	1	1	1	4	2	1	4	4
New Orleans, Louisiana	218	2	4	5	2	3	2	2	3	5	2	2	3	3	2
New York, New York	2	3	3	4	5	5	5	5	5	3	5	5	4	3	2
	3	3	3	3	4	4	5	4	5	3	5	5	5	2	1
	4	2	3	4	5	5	5	5	4	4	4	4	5	3	3
	5	5	5	3	5	5	4	3	4	4	5	5	5	1	1
	19	1	3	4	4	4	5	5	3	3	4	4	5	2	3
	20	1	3	3	4	4	5	–	–	3	4	2	5	2	3
	21	2	2	2	3	3	4	5	3	2	4	4	5	1	3
	229	1	3	3	4	4	5	4	5	3	4	2	4	4	2
Nogales, Arizona	101	2	4	4	2	2	1	1	1	1	2	2	2	4	1
Oakland, California	95	2	1	2	2	2	2	3	1	2	2	2	4	1	1
Omaha, Nebraska	202	2	2	4	2	2	1	1	1	1	2	2	1	3	2
	203	4	4	2	2	1	1	1	1	1	2	2	1	2	3
Oneca, Florida	130	1	–	1	1	1	3	3	2	2	4	2	2	4	4
Overland Park, Kansas	88	1	2	1	1	1	1	1	1	1	2	2	1	3	1
Owensboro, Kentucky	41	1	1	1	2	2	3	3	2	2	4	2	2	4	4
	42	2	1	2	3	3	3	3	2	3	4	2	2	4	3

Table C–1 (continued). COMPONENT RANKS, 1968

Area name	Station number	Particulates			SO_2					H_2S	Acid aerosol		NO_x	Oxidation potential	
		Dustfall	Sticky paper	Fabric No. 6	Lead Candle	Lead plate	Quarterly steel	Annual steel	Zinc	Silver plate	Quarterly nylon	Monthly nylon	Fabric No. 3	Rubber panel	Fabric No. 5
Owensboro, Kentucky (continued)	43	3	3	4	4	4	3	4	3	3	4	2	3	2	3
Paducah, Kentucky	259	—	—	—	3	—	—	—	—	2	2	2	—	—	—
	260	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Parkersburg, West Virginia	63	4	1	1	3	3	3	3	2	4	4	2	3	1	2
	64	3	1	3	3	3	5	—	2	3	2	2	3	2	4
Pascagoula, Mississippi	234	—	—	—	—	—	—	—	1	—	—	4	—	—	—
Pensacola, Florida	145	2	1	2	2	2	2	2	5	3	4	2	3	4	4
Petersburg, New York	29	1	—	1	2	2	2	2	1	1	4	2	1	3	4
Philadelphia, Pennsylvania	11	5	4	4	5	5	4	—	3	5	5	5	5	2	1
	12	2	3	4	5	5	3	4	3	4	4	4	5	1	2
	13	5	4	5	5	5	3	3	3	5	4	4	5	2	1
	17	4	5	5	5	5	3	3	3	4	4	4	5	3	1
Phoenix, Arizona	268	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Portland, Oregon	82	4	3	3	3	3	2	2	3	2	2	2	2	1	1
	83	1	1	1	2	2	3	2	4	3	4	4	1	1	2
	84	1	2	3	3	3	3	3	2	3	2	2	2	1	1
Portsmouth, New Hampshire	174	2	3	4	5	5	5	4	4	3	4	5	4	—	3
	176	1	1	1	2	2	3	—	5	1	4	2	2	2	2
Providence, Rhode Island	187	4	4	2	4	3	4	4	3	2	4	2	4	2	2
	190	2	3	3	4	4	4	4	5	3	4	4	5	2	3
Puerto Rico, Guaynabo	255	5	3	—	3	3	5	—	—	3	5	—	—	—	4
Puerto Rico, Salinas	256	—	—	—	1	1	2	—	—	2	2	2	—	—	—
Puerto Rico, El Yungue	257	—	—	—	1	—	3	—	—	1	2	2	—	—	—
Pullman, Washington	73	3	2	1	1	1	1	1	1	1	4	2	1	2	2
Rooseveltown, New York	194	1	1	3	3	—	2	3	3	4	2	4	3	3	4
St. Joseph, Missouri	204	4	3	2	1	1	1	1	1	1	2	2	1	3	2
	205	3	3	1	1	1	1	1	1	1	2	2	1	3	2
St. Louis, Missouri	28	5	5	3	4	4	3	3	5	3	4	4	4	1	1
	45	4	4	5	5	5	5	5	5	5	5	5	3	1	1
	46	4	4	3	5	5	4	—	3	5	2	2	3	2	1

Table C–1 (continued). COMPONENT RANKS, 1968

Area name	Station number	Particulates			SO_2					H_2S	Acid aerosol		NO_x	Oxidation potential	
		Dustfall	Sticky paper	Fabric No. 6	Lead Candle	Lead plate	Quarterly steel	Annual steel	Zinc	Silver plate	Quarterly nylon	Monthly nylon	Fabric No. 3	Rubber panel	Fabric No. 5
San Ysidro, California	94	1	3	1	1	1	2	2	1	2	2	2	3	5	5
Sarnia, Ontario, Canada	166	4	3	3	4	4	4	3	3	4	2	2	2	1	3
	167	3	3	1	3	3	4	5	3	2	2	2	2	1	3
	168	3	3	3	4	4	4	4	2	3	2	2	3	2	5
	169	3	2	2	4	4	4	4	2	4	4	2	2	1	3
Sault St. Marie, Michigan	223	3	3	4	3	3	3	–	3	3	2	2	2	2	3
Savannah, Georgia	132	3	3	2	3	3	3	3	3	4	2	2	3	3	3
Seattle, Washington	78	1	2	3	3	3	3	2	3	2	5	4	3	1	1
Sherman, Texas	127	2	3	3	1	1	1	1	1	1	2	2	2	4	4
Shreveport, Louisiana	212	–	2	–	1	1	1	1	–	2	4	4	–	4	–
	213	3	2	2	1	1	1	1	1	3	2	2	2	2	3
Sioux City, Iowa	200	4	4	1	1	1	1	1	–	1	4	2	1	1	1
	201	5	4	2	1	–	1	1	1	1	2	2	1	2	1
Sioux Falls, South Dakota	199	3	4	2	1	–	1	1	1	1	4	2	1	2	2
South Tahoe, California	96	1	2	1	1	–	1	1	–	1	2	2	1	2	3
	97	1	1	1	1	1	1	1	4	1	2	2	1	4	3
Spokane, Washington	71	3	–	–	2	1	1	1	1	1	4	2	–	–	1
	72	3	3	3	2	2	2	2	2	1	2	2	1	2	1
Spray, North Carolina	156	2	1	–	2	2	2	–	–	2	2	2	3	3	–
	157	1	1	1	2	2	2	2	2	2	2	2	3	3	5
	222	2	2	2	2	2	2	2	1	3	2	2	2	4	5
Springfield, Massachusetts	182	4	4	5	5	4	4	4	4	2	5	5	5	1	2
	183	1	2	2	3	3	4	4	4	2	4	4	4	3	3
Steubenville, Ohio	60	3	2	4	4	4	4	4	3	3	2	2	4	1	1
	61	5	4	3	5	5	5	5	5	5	4	2	4	2	1
	62	5	5	4	4	4	5	5	5	5	4	2	4	1	1
	220	5	4	5	5	5	5	5	4	5	2	2	4	1	1
	221	3	3	5	4	4	5	5	5	4	4	2	4	4	3
Sumpter Township, Michigan	164	2	1	2	3	3	3	3	–	2	2	2	2	5	5
Tampa, Florida	68	3	3	2	3	3	4	5	2	5	2	2	3	3	4

Table C–1 (continued). COMPONENT RANKS, 1968

Area name	Station number	Particulates			SO_2					H_2S	Acid aerosol		NO_X	Oxidation potential	
		Dustfall	Sticky paper	Fabric No. 6	Lead Candle	Lead plate	Quarterly steel	Annual steel	Zinc	Silver plate	Quarterly nylon	Monthly nylon	Fabric No. 3	Rubber panel	Fabric No. 5
Texarkana, Texas	128	2	1	2	1	1	1	1	1	3	4	2	2	3	1
	129	1	2	3	1	1	1	1	2	3	4	2	2	3	4
The Dalles, Oregon	79	1	2	2	2	1	1	1	1	1	2	2	1	1	2
Ticonderoga, New York	178	1	1	1	3	3	3	4	3	5	4	4	1	–	4
	179	1	1	2	2	2	2	3	4	3	2	2	2	4	5
Toledo, Ohio	36	4	4	4	4	4	3	4	–	4	2	2	3	2	2
Trenton, New Jersey	18	3	3	2	4	3	–	–	4	3	4	2	4	–	3
Vicksburg, Mississippi	217	4	3	4	1	1	1	1	2	2	2	2	2	3	2
	236	3	–	–	1	1	2	1	1	3	2	2	–	–	–
Volunteer Arsenal, Chattanooga, Tennessee	107	5	2	2	2	2	3	5	5	3	5	5	4	1	2
	108	2	1	1	2	2	2	–	2	2	5	5	4	3	3
	109	2	1	1	2	1	2	3	4	2	5	5	4	1	2
	110	3	1	1	1	1	2	2	4	3	5	5	4	3	3
Washington, D.C.	7	4	4	4	3	4	3	2	2	3	4	2	5	1	2
	111	2	–	3	4	3	3	3	4	3	2	2	5	–	3
	112	2	3	4	3	3	3	–	5	3	4	2	4	3	3
	113	2	3	3	3	3	3	2	2	3	4	2	5	3	3
Westerly, Rhode Island	185	1	2	3	3	3	4	5	3	2	4	2	4	4	4
	186	2	3	2	3	3	4	5	1	2	4	2	4	4	4
Wichita Falls, Texas	126	1	2	1	1	1	1	1	1	1	2	2	1	4	4
Wilmington, Delaware	8	5	4	3	5	5	4	3	5	4	5	5	4	1	2
	9	2	2	2	4	4	4	5	3	4	2	2	4	2	2
	10	3	4	3	5	5	5	3	3	3	5	4	5	2	2
	16	2	2	3	4	–	4	5	3	3	4	4	5	2	3
Winona, Minnesota	225	2	2	1	3	2	2	3	1	1	4	4	1	1	3
	226	2	2	3	2	2	2	2	1	1	2	2	1	2	3
Youngstown, Ohio	15	5	–	4	3	3	3	3	3	2	2	2	3	3	1
	38	5	5	5	4	4	4	4	5	5	2	2	4	1	1
Yuma, Arizona	92	1	3	1	1	1	1	1	2	1	2	2	1	5	4